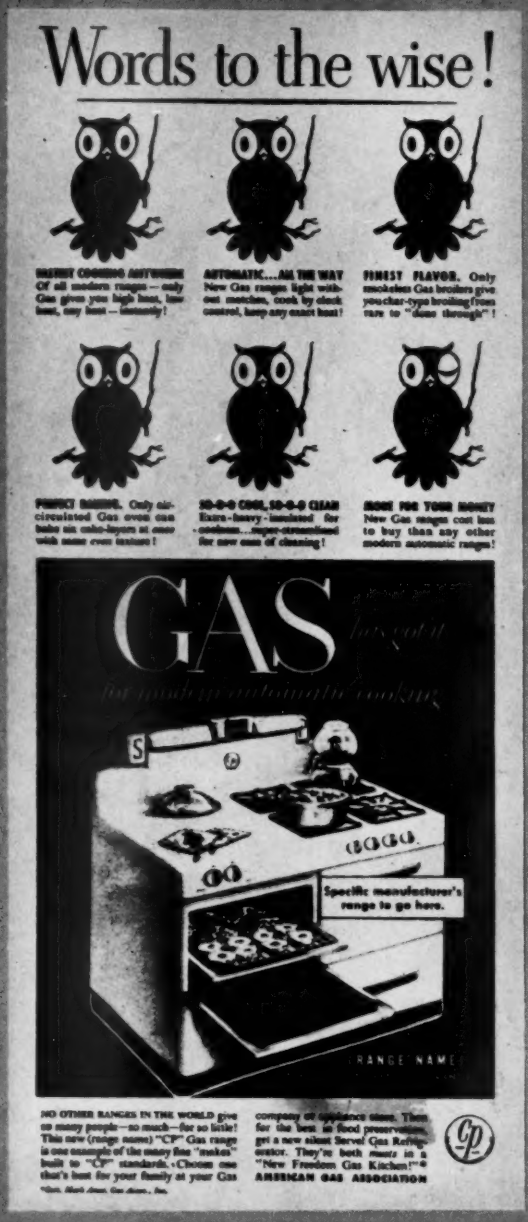
ISSUE OF OCTOBER, 1948

AMERICAN GAS ASSOCIATION MONTHLY

Here are the opening ads in the 1948–49 national series on automatic gas range


Words to the wise!
FINEST FLAVOR. Only smokeless Gas broilers give you char-type broiling from rare to "done through"!
AUTOMATIC...ALL THE WAY New Gas ranges light without matches, cook by clock control, keep any exact heat!
MORE FOR YOUR MONEY New Gas ranges cost less to buy than any other modern automatic ranges!
GAS has got it for modern automatic cooking
Specific manufacturer's range to go here.
RANGE NAME
NO OTHER RANGES IN THE WORLD give so many people—so much—for so little! This new (range name) "CP" Gas range is one example of the many fine "makes" built to "CP" standards. Choose one that's best for your family at your Gas company or appliance store. Then for the best in food preservation, get a new silent Servel Gas Refrigerator. They're both made in a "New Freedom Gas Kitchen!"*
AMERICAN GAS ASSOCIATION

name your wish!
"EVERYTHING AUTOMATIC" New Gas ranges have automatic time and heat controls . . . light without matches!
"INSTANTANEOUS SPEED" Only Gas gives you high heat, low heat, any heat you want . . . without waiting!
"COOL, CLEAN COOKING" Smokeless broiling! Non-clog burners! Extra-insulation! Only Gas has them all!
"FINEST RESULTS" Only air-circulated Gas ovens bake so evenly. Only pure flame broils so perfectly!
"SIMULTANEOUS BAKING and broiling. Separate waist-high broiler. Bigger-than-ever oven with glass door!
"MORE FOR THE MONEY" Gas ranges cost less to buy and operate than any other modern cooking appliances!
Gas has got it!
Specific manufacturer's range to go here.
RANGE NAME
DISCOVER THE SAME MODERN MIRACLE that is making more women choose Gas ranges than all other types combined! See this new (range name) "CP" Gas range—and other "makes" built to "CP" standards—at your Gas company or appliance store. And for the next step in your "New Freedom Gas Kitchen,"* pick a Servel Gas refrigerator. It stays silent...lasts longer!
AMERICAN GAS ASSOCIATION

October opens another year in the gas industry's national cooperative advertising program. The 1948-49 Gas Has Got It campaign calls for 80 insertions in influential consumer magazines, circulations of 32 million, and total messages running up to 280 million. Turn to page 7 for full story

That phenomenon of the American industrial system—the annual business convention—will pass this month another conclusive test of merit. . . . The American Gas Association's sessions in Atlantic City and the Gas Appliance Manufacturers Association's giant exhibition are expected to draw close to ten thousand persons from all sections of the industry. Incidental to the main sessions, an excellent program of entertainment has been arranged for gas men and their ladies. But underlying the air of joyful reunion will be a serious vein. This thirtieth annual convention is also a not-to-be-missed opportunity for the entire gas business to re-assess its aims, its strength and its problems . . . A look at the critical international scene should tell the most casual observer that the new year will bring rapid and drastic changes in the national economy—increased expenditures for defense and an accelerated program of aid to other countries are in prospect. Whatever form America's preparedness program assumes, it is certain that the gas industry will play an important role in meeting over-all fuel needs. . . . Gas week in Atlantic City should prove invaluable as a clearing house of information. Therefore, we sincerely urge that all delegates ponder deeply the messages which they carry home so that 1948 will mark the beginning of a new era of service both to the public and the nation.

JAMES M. BEALL
EDITOR

JAC A. CUSHMAN
MANAGING EDITOR

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Curtain rises on Convention

An American institution of time-tested and far-reaching effectiveness will hold the nation's spotlight this month as the thirtieth annual convention of the American Gas Association and exhibition of the Gas Appliance Manufacturers Association is held in Atlantic City, N. J., October 4-8. The event will demonstrate once again the fundamental soundness, stability and resourcefulness of the gas industry in meeting the problems of the new scientific age.

As this issue of the MONTHLY comes off the press, approximately 10,000 of the gas industry's representatives will be getting a first-hand report on the most compelling national industry problems. More than 100 speakers, chosen from within and outside the industry for their exceptional experience and ability, will give their views at 22 separate sessions.

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In addition to the general sessions, there will be separate meetings of the Manufactured and Natural Gas Departments, and the Accounting, Residential Gas, Industrial and Commercial Gas, and Technical Sections. Home Service, personnel, and dealer meetings will round out a program which promises a wealth of information on all phases of industry activities.

When this vast amount of factual information is combined with the spectacle of the record-breaking exhibition sponsored by the Gas Appliance Manufacturers Association, there is no question of the dividends forthcoming from this convention. Space in the exhibition has been completely sold out and manufacturers are expected to display more advanced models incorporating new developments than have ever before been assembled in one place. No matter how complete the reports of returning delegates, it will be difficult if not impossible for them to convey the thrill of seeing the vast municipal auditorium, filled from one end to the other with the latest model gas appliances.

Program headliners include many outstanding industry leaders. Since the September issue of the MONTHLY went to press, the following have been added to the general sessions program: A. B. Hossack, president, American Appraisal Co., New York; Dr. William A. Irwin, economist, The American Bankers Association, New York; Edward Falck, chief consultant on power and utilities, National Security Resources Board, Washington, D. C., and Dr. Clyde E. Williams, director, Battelle Memorial Institute, Columbus, Ohio.

Standing at the peak of its service to the country, with more than 21 million customers, the gas industry is wrestling with the problems of a rapidly expanding economy and a number of speakers will direct their remarks to various phases of this phenomenon. Demands for service that cannot be satisfied completely and broad-gauged public relations topics are high on the agenda of the convention. Experts from regulatory bodies and business will review the prodigious efforts to enlarge the gas supply and financial and other aspects of the industry's unprecedented expansion program.

The penetration of natural gas into many new markets and its increasing utilization in manufactured gas areas will receive special attention. One constructive trend to be assayed is the increasing unity of these two branches of the industry. It is recognized that the futures of both branches are bound up in the changing patterns of the nation's natural resources and technological developments.

Synthetic fuels are looming larger on the national horizon and their potentialities will be discussed at Atlantic City. There will also be reports on the immediate and long-term supplies of coal, oil and coke.

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Promotion, advertising and research—the triple-threat backfield of the Association's progressive Par plan—have a prominent place on the program. The integrated and coordinated national sales programs which have been front-page news this past year will be reviewed as well as the ever-widening gas industry research effort.

Many other topics are on tap for the convention-goer. The composite result should be another milestone in the industry's steady progress in the vanguard of public service. For complete reports of the convention, see the November MONTHLY.

◀*D. S. Martin (left), superintendent distribution department, Citizens Gas & Coke Utility, checking installation of 24-inch high pressure gas main in Indianapolis with construction company official. Photo by Larry H. Ruff*

"We want our readers to know all about what is new in gas equipment and to make available to our food department the very best in cooking equipment," says Elizabeth Beveridge, equipment editor, "Woman's Home Companion," where gas test kitchens have been in continuous use for 13 years. The kitchen shown above is one of several which the magazine uses for testing, food preparation, and gas equipment and its testing

Where food facts are tested

A pictorial tour of test kitchens where gas equipment plays a prominent role

The food business is the largest industry in the world, for no matter what happens people must eat.

Those who write about food and the manufacturers who produce it must, therefore, constantly check their food facts and production by precision testing. Much of this vitally important work is done in test kitchens which are fully equipped and resemble the kitchen in the average American home.

Editors and food manufacturers know that two out of three families in this country cook with gas. Therefore many magazines and food companies have equipped their kitchens with gas appliances in order to test under conditions as close as possible to those in the home.

As many families are still using older gas ranges, some test kitchens have been planned along the same line. However, as sales of shiny new gas ranges continue to rise, increasing numbers of test kitchens have been adapted to make use of the latest scientific gas equipment and stepsaving arrangements.

Many of the leading women's magazines such as *Ladies Home Journal, McCall's* and *Better Homes and Gardens* are now in the process of renovating their kitchens, following which they will be equipped with gas appliances. But that is another story which will be told in a future issue of the MONTHLY.

Here is a pictorial tour of test kitchens of seven large magazines, advertising agencies and food companies showing gas equipment for all kinds of testing, food preparation and photography.

Starting the tour at the top of this page you will be introduced to some of the most scientific testing establishments in the country. You will visit *Woman's Home Companion,* MacFadden Publications, *American Home* magazine, *Family Circle,* Batten, Barton, Durstine and Osborn advertising agency, General Foods Corp., and The Borden Company.

5.) "Baking is our business," says Marie Sellers (in director of consumer service at General Foods. "In the sumer service kitchens we try to approximate conditions the average American home, as of the present day, wh so many gas ranges are of prewar vintage." The Kitchen includes two kitchenette-size ranges, a house range, and laboratory-type baking ovens. General Fo maintains five consumer kitchens, a complete Institu kitchen with a gas range and gas urns, a home laun center and a test kitchen in their research laborato

1.) Batten-Barton, Durstine and Osborn advertising agency recently renovated their test kitchen and installed a gas refrigerator and gas range. Grace Manney is in charge of food tests, and from these information is sent on to consumers and food manufacturers

2.) This all-gas kitchen has been renovated within the past two years by "Family Circle" magazine, which is sold in nine chain groceries across the country. The magazine helps readers by testing with the type equipment used in the average home

3.) Mrs. Lila Martin (center), supervisor of Borden's test kitchen, and her assistants are trying out new ways of using their company's many products. The cooking tests, as you can see, are being performed on a gas range

4.) Two and a half million readers of "American Home" magazine learn about new food products and tempting ways of using them through the magazine's excellent food pages. Cooking tests are made on gas ranges, correct storage in the gas refrigerator. This is just one corner of "American Home's" several test kitchens.

6.) When test kitchens of the home economics department at MacFadden Publications were moved into new quarters recently, gas equipment was reinstalled. Recipes, menus, and food products are tested here for the readers of six different magazines—"True Story," "True Experience," "Photoplay," "True Romance," "Radio Mirror," and "True Love"

California ties in with hot water magic

A. G. A. program basis of summer and fall warm-up campaign

A PAR activity Southern California Gas Company and Southern Counties Gas Company have used the 1948 American Gas Association program "For Hot Water Magic Gas Has Got It" as the basis for a summer and fall warm-up promotional program for some 1,500 water heater dealers. The program was activated with the cooperation of water heater manufacturers.

Here is how the two companies have participated in this national gas water heater promotion.

A local advertising and display campaign broke September 5 and ran for a six-weeks period. The advertising departments of the two companies and their agency, McCann-Erickson, Inc., developed a series of five hard-hitting merchandising newspaper advertisements (see accompanying illustrations). These were based on specific "reason why" copy and quoted facts why gas water heating is superior. Headlines were used such as "Three Times Faster With Gas," "One-Half the Cost" and "49 to 1." The latter headline emphasized the fact that Southern California's new home builders are choosing gas for water heating 49 to 1 over other fuels.

More than 40 daily newspapers in the companies' territories carried a weekly insertion and some 200 weekly newspapers also carried a representative schedule.

An average of two radio commercials based on the theme "Hot Water Magic" were broadcast every night on the gas companies' evening concert program. These broadcasts reach throughout Southern California and have an unusually high rating for this type of program.

Four hundred 24-sheet outdoor posters were posted throughout the territory served by the companies and a showing of cards in more than 2,000 street cars and buses duplicated the outdoor board.

Special point-of-sale material emphasized the economy advantage of automatic gas water heaters. Striking window decalcomania valances featuring automatic gas water heaters were offered to dealers at no cost.

Large, colorful posters emphasized to consumers the personal satisfaction of sufficient hot water. Specific direction of the sales effort towards larger capacity water heaters was made by charts advising the correct-size water heater to meet different requirements. These were placed in the windows of gas company display offices and dealers' stores. Gas company representatives helped dealers install colorful water heater tank streamers, wall posters and counter cards. These counter cards duplicated the 400 outdoor billboards. Every possible avenue was used to drive the message across in these outlets. Ample supplies of selected gas water heater promotional booklets for consumer consumption were strategically placed.

Water heater manufacturers cooperated fully and their sales representatives followed through by talking-up the campaign and providing newspaper advertising mats for their individual dealers. Gas company representatives were equipped with samples of all promotional material, including advance copies of the newspaper advertisements and a complete schedule of the insertion dates for each area to enable the dealer to tie in his own advertising.

This promotional program was handled through the offices of F. M. Foster, manager of residential sales, Southern California Gas Co., and F. S. Parmenter, assistant manager of appliance sales, Southern Counties Gas Company.

HOT WATER FOR YOU
Nearly 3 times faster with Gas!
...and at less than half the cost
GAS Water Heaters
When it's HOT WATER you need, choose the fuel that leads with new home buyers
49 to 1*
Why? Because an automatic Gas water heater makes cold water hot nearly 3 times faster
GAS

Selling punch is emphasized in these advertisements which, beginning the week of September 5 through October 15, will appear in every daily newspaper in the California gas companies' territory

What's new in Gas Has Got It

All phases of advertising effort enter new year with renewed vigor

A PAR activity October starts another new year in the Association's national cooperative advertising program. This is the thirteenth consecutive year in which the gas utility has endeavored to develop a wider public recognition of gas service and modern gas appliances and equipment through the advertising pages of America's most influential consumer magazines and business papers.

The budget remains the same as for last year, namely, $800,000. The respective allocations for domestic gas advertising, industrial and commercial gas advertising, sales promotion and administration are unchanged.

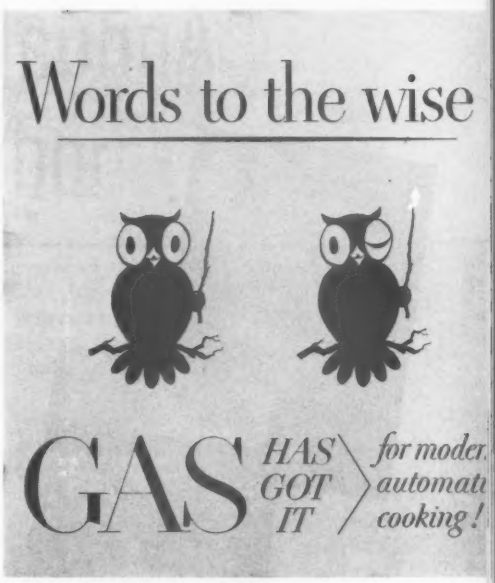
Tested and enthusiastically approved for a period of 12 months, the domestic advertising program for the new year will continue to promote automatic gas ranges built to "CP" standards. The 1948-49 schedule calls for 80 insertions, circulation of 32 million, and total messages running up to 280 million. Nine manufacturers who advertise nationally and two who advertise regionally have already pledged themselves to support the program for the coming year. The estimated volume of their advertising for the next 12 months will be substantially the same as for the current year.

The first two advertisements in the continued campaign on automatic gas ranges are reproduced on the inside cover of this issue of the MONTHLY. It will be noted that they retain all the basic selling ideas of the present campaign which has been an outstanding success, while adding some new features which should gain increased reader interest. The New Freedom Gas Kitchen continues to be promoted. The Servel gas refrigerator will be featured by name. Illustrations of ranges of participating manufacturers and identification of these by brand name will be shown with the ranges in action cooking food.

The opening advertisement in the 1948-49 series features the *owl* as an illustrative device. Six owls are shown in each advertisement, and during the month of October some 186 million owls will find themselves on the advertising pages of some of the largest circulation magazines in America. These include: *Life, Saturday Evening Post, Good Housekeeping, Ladies' Home Journal, McCall's, Woman's Home Companion, Better Homes & Gardens, American Home* and *Parents'*.

The heading for the October advertisement is "Words to the Wise!" November issues of magazines will feature the *wishbone* and the heading, "Name Your Wish." December issues will feature the *pine tree* with the heading "If You're Pining For . . ."

The cooperative character of the "Gas Has Got It" program on automatic gas ranges has been a major factor in encouraging range manufacturers to increase their use of national advertising and step up materially all supporting promotional activities. Illustrated articles on gas ranges and gas cooking have appeared in increasing number in the magazines carrying A. G. A. advertising. Other magazines not presently being used have devoted substantial favorable editorial space to the many improvements now found in strictly modern gas ranges. Since this has been a "leader" campaign it has stimulated the sale of all types of gas ranges. Also, as expected, it has exerted a favorable influence on the wider public acceptance of all domestic gas equipment.

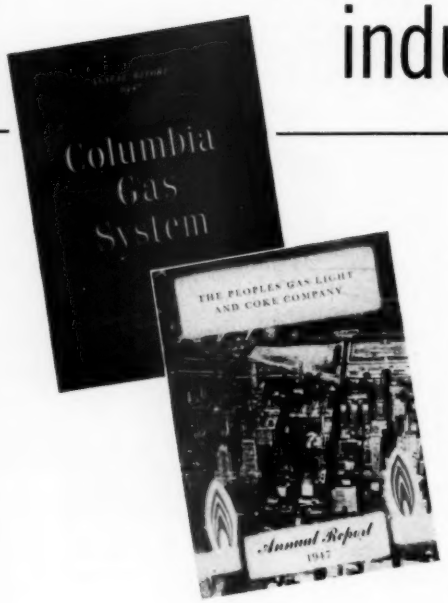


The owl will be featured as an illustrative device in the opening advertisement of the series

The second phase of the over-all national advertising program covers the promotion of gas fuel for industrial and commercial applications. It may not be generally known that the Association has promoted this advertising in leading business or trade magazines for the last 25 years. Prior to 1935, when all national advertising was brought under one coordinated head, business papers with national circulation had carried A. G. A. industrial and commercial gas advertising for 12 years. Since its inception the program has hewn to the line, doing a consistent, down-to-earth selling job—pushing the advantages of gas as a modern industrial fuel; emphasizing the dollars and cents value of modern gas equipment; keeping gas in the forefront for commercial cooking; promoting new applications as they prove themselves in use, and generally building prestige for gas by selling up-to-dateness and progressiveness of the industry as a whole.

During the coming year, copy and art platforms will continue to follow lines demonstrated to have been effective in the past. Following the trend established during recent years, an increasing number of advertisements will be built on case histories of "end-use" applications obtained at the source by members of the Industrial and Commercial *(Continued on page 48)*

Annual reports win industry Oscars



Bronze "Oscar of Industry" trophies for the best 1947 annual reports in the manufactured gas and natural gas industries, respectively, will be awarded to The Peoples Gas Light & Coke Co., Chicago, Ill., and The Columbia Gas System, Inc., New York, at the annual report awards banquet of *Financial World* magazine in the Hotel Pennsylvania, New York, on October 21, 1948.

More than 4,000 corporation annual reports were submitted in the national survey, the eighth in the series, and these were judged in 100 industrial classifications for the "Best of Industry" awards.

The independent board of judges rated the 1947 report of Dresser Industries, Inc., Cleveland, Ohio, as best in the building equipment field, thus qualifying that company too for a bronze "Oscar of Industry." Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., won third place in this field.

Suburban Propane Gas Corp., Whippany, N. J., received second place in the manufactured gas category for its report, and The Laclede Gas Light Co., St. Louis, Mo., received third-place recognition.

In the natural gas group, Northern Natural Gas Co., Omaha, Nebr., took second place and National Fuel Gas Co., New York, third place.

Leading reports in the Public Utilities category by regions were selected as follows: *Canadian*—Shawinigan Water & Power Co., Montreal, followed by Southern Canada Power Co., Montreal, and Quebec Power Co., Quebec; *Eastern*—Philadelphia Co., Pittsburgh, Pa., first, followed by Consolidated Edison Co. of New York, Inc., and Pennsylvania Power & Light Co., Allentown, Pennsylvania.

Midwestern—Union Electric Co., St. Louis, Mo., North American Co., New York, and Northern Indiana Public Service Co., Hammond, Ind.; *Southern*—Arkansas Power & Light Co., Pine Bluff, Ark., followed by Georgia Power Co., Atlanta, Ga., and New Orleans Public Service Inc., New Orleans, Louisiana.

Southwestern—Houston Lighting & Power Co., Houston, Texas; Electric Power & Light Co., New York, and San Diego Gas & Electric Co., San Diego, Calif.; *Western*—Puget Sound Power & Light Co., Seattle, Wash.; Pacific Gas & Electric Co., San Francisco, Calif., and Citizens Utilities Co., Greenwich, Connecticut.

A total of 2,000 separate reports were judged and rated earlier this year on the basis of editorial and statistical content (60 percent), and format, illustrations and typography (40 percent), or a possible total of 100 points for each report.

Of these, 962 annual reports for 1947, or 48 percent of the 2,000, achieved "Highest Merit Awards" and became candidates for the bronze "Oscar of Industry" in 100 industrial classifications. The proportion of "modern" annual reports was only six percent in 1940 and 43 percent in 1946.

The Peoples Gas Light & Coke Company's 32-page prize-winning report carries an attractive aerial view on its front cover and an interesting variety of pictures among its contents. These pictures are notable photographically for the excellent use which was made of light and shadow.

A section entitled Peoples Gas Facts at a Glance is placed in the front of the book for the reader's convenience. Next in line are comments on statements of consolidated income and consolidated balance sheets.

The Columbia Gas System's 28-page report uses a white-on-black cover and a simplified contents page.

Some of the outstanding sections are: a review of earnings, 1947 in Pictures, Columbia's People, Columbia's Stockholders, The System's Income Dollar, Cost of Living-Cost of Gas, and Gas Reserves. An over-all map of the system in color is carried on the inside back cover.

Weston Smith, vice-president, *Financial World,* and originator of the annual report surveys, will present the "Oscar of Industry" trophies at the annual awards banquet.

EIGHT-YEAR TREND OF MODERNIZED PUBLIC UTILITY ANNUAL REPORTS
(Number of Companies Issuing Merit Winning Reports)

Year of Report	*Gas & Electric Companies*	*Communications Telephone & Tel.*	*Transit Companies*	*Total*
1940	9	1	0	10
1941	15	2	1	18
1942	19	2	1	22
1943	26	3	1	30
1944	39	3	3	45
1945	72	12	7	91
1946	105	16	8	129
1947	124	21	9	154

His tabulation of statistics shows that "it is possible to say without fear of contradiction that the public utilities as a group have shown the most progress of any industry, and the gas and electric companies in particular.

"The huge increase in the number of

Success Formula

by Avery Giles

● Launch that new product with high-powered sell,
In newspapers and magazines, as well;
In spots or sponsored programs, take the air;
Wage your campaign, prepared to do and dare!
Then, lest sales slump, this always is expedient:
Add a stupendous, new improved ingredient,
Tagged with scientific-sounding name:
Presto! Your product's on the road to fame!

—*Printers' Ink*

CHARLES FRANCIS PRESS ANNUAL REPORT TIME TABLE AND CHECK LIST

AN ANNUAL REPORT PLANNING GUIDE FOR BUSINESS EXECUTIVES PREPARED BY THE EDITORIAL DEVELOPMENT DIVISION, 461 EIGHTH AVENUE, NEW YORK

	FIRST PERIOD	SECOND PERIOD	THIRD PERIOD	FINAL PERIOD (After Receipt of Auditor's Report)
PLANNING	☐ Analysis and determination of broad Annual Report needs in accordance with current corporate problems and objectives. ☐ Selection of key personnel to serve in liaison capacity between company and Editorial Development and Production staffs of Charles Francis Press.	☐ Development of basic ideas, themes and treatments adaptable to recommended and approved Annual Report needs and objectives. ☐ Formulation and approval of basic editorial and page-by-page organization of the report.	☐ Re-planning, where necessary, of Annual Report pages presenting statistical data based on the year's corporate operations. ☐ Discussion and planning of Annual Report facts and figures in terms of their by-product use through other adaptable channels of communication.	☐ Adaptation of Annual Report copy and data to financial and institutional advertising, publicity, stockholders' meetings and other related public relations media and activities.
COPY	☐ Appraisal of previous Annual Report copy in terms of planning analysis. ☐ Development and selection of past and new copy themes adaptable to present needs.	☐ Determination of final subject list, copy style and sectional headings. ☐ Editorial research, development of final copy themes in accordance with approved planning procedures.	☐ Writing, correction and O.K. of final draft, except for portions determined by final accounting reports. ☐ Writing and correction of photo and illustration captions, chart legends and explanatory copy.	☐ Writing, correction and final O.K. of copy affected by auditor's final report of operations.
LAYOUT	☐ Study and creation of basic layout treatments in accordance with planning analysis, subject matter and established layout style. ☐ Preparation of rough layouts showing proposed treatment for cover and typical editorial, illustrative and accounting report pages.	☐ Preliminary preparation of actual page-by-page roughs based on approved themes, copy, illustration and printing production details. ☐ Discussion, correction and final approval of basic layout treatments.	☐ Refinement and adjustment of individual page layout detail in accordance with final O.K. of copy, illustration and production phases. ☐ Layout adjustment of pages dependent upon auditor's report.	☐ Final O.K. of necessary corrections on sections and pages affected by final accounting figures.
ILLUSTRATION	☐ Recommendation, discussion and preliminary selection of photographic and illustrative treatments adaptable to the broad planning, copy and layout plans and procedures.	☐ Taking of necessary photographs, assembling of data for charts, maps and other illustrative matter. ☐ Completion and approval of final art for all major illustrative matter not affected by the auditor's report.	☐ Ordering of photo-engravings of all approved art work and illustrations. ☐ Preparation of artists' roughs for remaining charts and illustrations as based on auditor's preliminary report.	☐ Adjustment, completion and final O.K. of graphics and art as determined by final auditor's report. ☐ Ordering of all remaining photo-engravings.
PRINTING	☐ Determination of major format and mechanical requirements, delivery date, number of copies. ☐ Discussion of planning, creative and production procedures with the Production and Editorial Development staffs of Charles Francis Press.	☐ Selection of paper stock, typography and use of color, preparation of production dummy, recommendations for printing effectiveness, elimination of unnecessary and cost's procedures. ☐ Preparation of production schedules and deadlines for guidance of both company and Charles Francis Press.	☐ Type composition, page make-up and final proof O.K. of copy and art unaffected by auditor's report. ☐ Printing, where possible and feasible, of cover and inside sections not dependent upon final accounting figures.	☐ Final composition, make-up correction and O.K. of remaining sections of the report. ☐ Printing, binding, delivery and distribution of completed Annual Report.

Careful planning is necessary to produce an annual report which will improve company prestige

modernized annual reports during the past eight years provides a strong argument that alert managements are finding it sound practice to keep their shareholders informed—to win the confidence and support of the true owners of their corporations—the very people who are one of the important beneficiaries of the American economic system."

U. S. Steel in 1902 is credited with the first modernized annual report, Mr. Smith declared, but this was a long step from the easily readable report of today.

"Today the modernized annual report is a factual document presenting both the favorable and unfavorable factors. Both the management's achievements and its problems should be discussed. The latter, however, can be clarified and interpreted from the standpoint of the management. It should be understood, also, that an annual report is a review and not a forecast. The stockholders want to know if and how the management is preparing for the future, but they do not expect any executive officer to assume the role of a prophet."

Mr. Smith discussed still further his ideas and suggestions for annual reports in several recent addresses.

"Don't forget," he declared, "that today our corporations are owned by millions of small investors holding small lots of shares. A conservative annual report in a folder probably served the requirements of the banker, financier and big investor of 20 years ago, because they made it their business to know what was going on throughout the year.

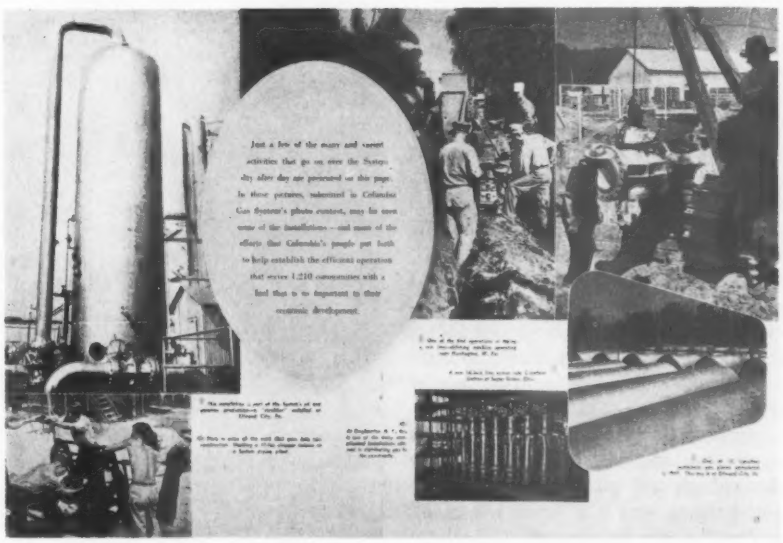
"The modernized corporation annual report with its simplified financial statements, understandable editorial content and attractive presentation is no longer considered a fashion of the times. By getting its message across to stockholders, employees and the public through clarified annual reports, management has done much to improve its prestige and to foster a more wholesome understanding of the American enterprise system of which it is a part.

"*Financial World* has been accused of encouraging the introduction of sex appeal in annual reports. But perhaps this is a good idea, because these yearly documents are being read by an increasing number of female shareholders. A survey recently completed by *Financial World* reveals that 52 percent of the preferred and common stocks of American corporations are registered in women's names, and the trend is towards a further expansion of the number of feminine investors.

"The ladies are reading the modernized annual reports today—not from cover to cover, but they are attracted by an intriguing cover design, appealing illustrations and a narrative that is easy to read. Practically all women will read the captions and photographs, and many corporations are planting their significant points of information in a two and three-line message for quick assimilation.

"A warning note must be sounded, however, particularly to those corporations which have flooded their reports with color and pictures without providing the necessary financial explanations, comparative statistics and adequate reviews of the year.

"A good annual report need not be elaborate or expensive—its purpose is not to entertain or amuse its readers, but to provide the facts to which the stockholder is entitled, and in a manner that can be readily understood by the average newspaper circulation."



This center spread from the 1947 annual report shows some of Columbia Gas System's many activities

Fall range campaign gains speed

Gas companies have already ordered portfolios for 5,000 range dealers

A PAR activity Ninety-six gas companies have signified their intention to participate in the new fall domestic gas range campaign sponsored by the Association's Domestic Gas Range Committee within ten days after they received the campaign material last month. The speed of the response and the early volume of orders for dealer portfolios and for available sales promotion materials indicate that the "Smart Cooks Know—Gas Has Got It!" campaign will be one of the most successful ever proposed by the American Gas Association.

Gas range manufacturers are also enthusiastic about the campaign. Several of them have already placed orders for portfolios to be distributed to their own field men and to their major dealer accounts.

Among the most popular of the sales promotion materials, as indicated by the volume of early orders, are the pot holders and the special mailing piece. The pot holders are attractively quilted, with a blue border and white center upon which the campaign slogan is prominently printed. They are an ideal gift for use by home service representatives and appliance salesmen. The mailing piece is a four-page folder attractively printed in two colors, explaining the background of the A. G. A. Laboratories' Approval Seal and illustrating some of the features of the modern gas range.

Another tool which it is anticipated will be popular with utilities and range dealers alike is an advertising mat service, which provides artwork and headlines with suggested copy and a variety of lay-out arrangements, thus enabling the individual advertising manager to put together advertisements which meet his own individual requirements. The complete set of mats is available at $8.00 per set.

Gas companies have already ordered dealer portfolios for 5,000 gas range dealers. Since comparatively few companies have placed their orders so quickly, it is reasonable to assume that before the year is out, a large percentage of all gas range dealers in the United States and Canada will have been brought into the drive through the dealer portfolio and participation in individual gas company campaigns.

The dealer portfolio places the market for gas ranges in new housing at one million a year for the next five years. It also points out a huge replacement market since gas ranges currently in use, according to a recent survey made by the Gas Appliance Manufacturers Association, include nearly 18 million that are more than five years old, more than ten million over ten years old, and five million that are 15 or more years old.

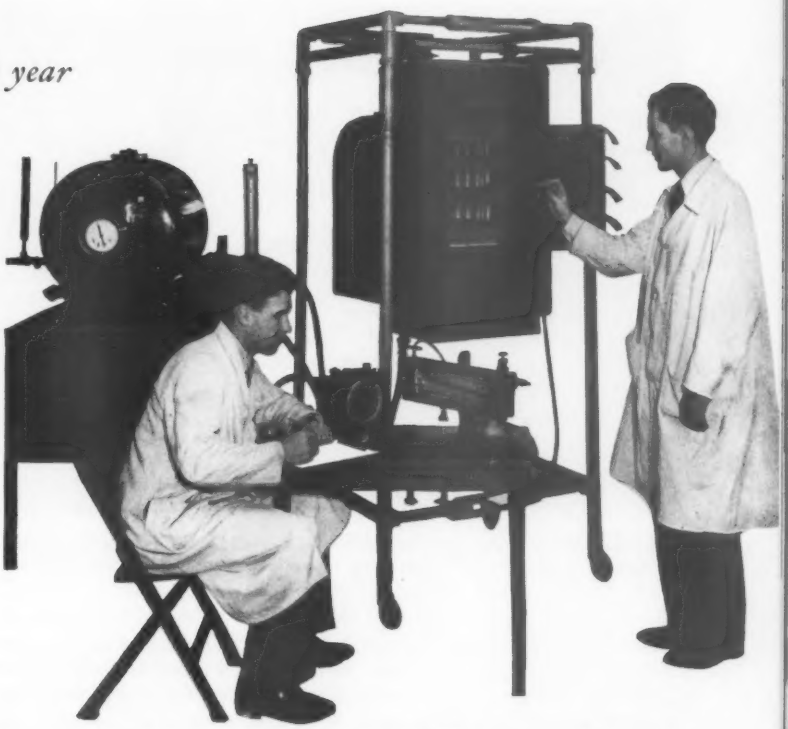
An interesting feature of the portfolio announces that national consumer magazine advertising of domestic gas ranges now totals 1,241,046,000 messages annually. Advertising impressions are broken down for the 48 states and Canada so that gas range dealers everywhere can judge the advertising impact on their own customers.

The portfolio also offers a page of suggestions for the dealer to improve his store. A check list through which he can quickly make a comparison of his own store and that of his competition is a novel feature.

Cover illustration from A.G.A. promotional portfolio designed for the domestic gas range dealer

Testing and inspection activities at new high for second successive year

Laboratories operations hit peak



Requirements investigation of unit heater operation. Simplification and coordination of approval requirements was accomplished during the year with seven sets of standards revised

Major requirements revisions which simplified and coordinated a number of different gas appliance testing standards, were one of the outstanding accomplishments of the year reported by the American Gas Association Testing Laboratories.

Testing and inspection activities climbed to a new high for the second successive year, according to Edwin L. Hall, director, while research activities continued to be closely associated with new appliance design and home construction trends. On the Pacific Coast the Association acquired additional testing facilities to meet the unprecedented demand for Laboratories' approval of gas-fired appliances and accessories.

For the fiscal year ending October 1, 1948, revision of seven separate sets of appliance standards was completed. The following revised texts were adopted and early approval by the American Standards Association is expected.

American Standard Requirements for:

1. Domestic gas ranges
2. Gas space heaters
3. Portable gas baking and roasting ovens
4. Hot plates and laundry stoves
5. Domestic gas conversion burners
6. Installation of domestic gas conversion burners
7. Automatic main gas-control valves.

The new standards represent a year of intensive activity in cooperation with the Laboratories by the individual subcommittees for the various types of equipment involved. These standards become effective January 1, 1949, but the Laboratories will test and certify appliances under them immediately upon request.

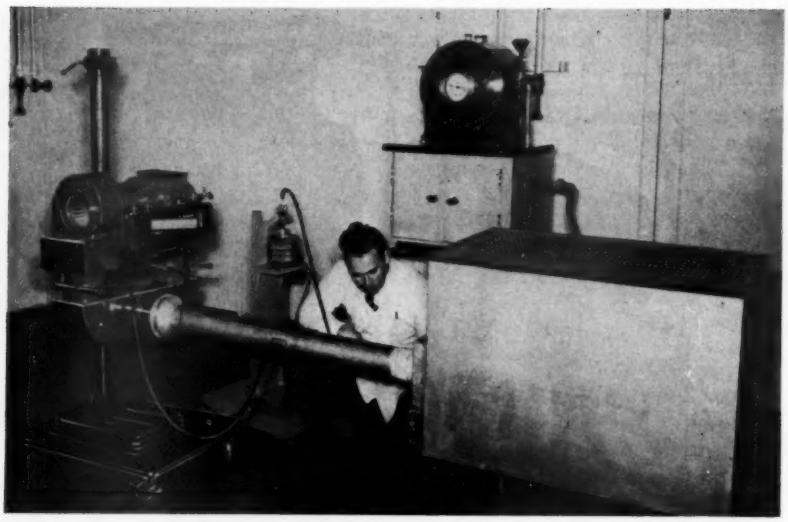
Three major objectives were pursued in revising the standards. First, greater standardization of both requirements and test methods; second, revisions to cover advances in technological progress and experiences gained in the field; and third, greater coordination and simplification of the various texts with the subject matter arranged in more logical order.

Safety as always remains the essential criterion for appliance construction and performance. Wherever possible, performance requirements were substituted for construction features in order to permit greater freedom of design and the use of new materials and fabricating methods. At the same time new requirements were also adopted to cover design developments, advances in automatic controls, and changes in installation methods.

All of the standards adopted were based upon a program of requirements investigational work wholly financed by the Association and conducted for the committees. In addition to adoption of the seven sets of new standards, the Approval Requirements Committee authorized action on other important matters closely connected with the requirements program.

Most important was authorization of a thorough review of laboratory test gases and pressures employed in the testing program to determine whether those now in use are fully representative of current gases distributed. Data are particularly desired in the case of liquefied petroleum gases and their mixtures with air in view of numerous changes taking place in the past few years. Both propane and butane from natural gas and refinery sources will be studied, the main objective being to select most representative and suitable test gases for use by the Laboratories.

In terms of the number of appliances tested for Laboratories' approval, testing activities increased approximately ten percent over last year. Inspection activities increased approximately 20 percent. The trend to gas as a fuel for domestic heating and cooking again was reflected in the fact that testing of furnaces and boilers increased 24 percent while space



Testing floor furnace under down draft conditions at the Association's Pacific Coast Laboratories in Los Angeles. Testing activities for the second successive year climbed to a new high

heaters and ranges increased 25 percent and 20 percent respectively. These gains more than offset a decrease in water heater testing of five percent and a decrease of 25 percent for accessories and miscellaneous items. Suspension of conversion burner testing early in the 1947 calendar year and subsequent revision of the requirements covering them combined to bring about a decrease in such activities of approximately 74 percent.

While a gradually rising test load has been experienced over the years, this effect was increased during the past two years by the postwar resumption of gas appliance production and by the expiration of appliance approvals which had been extended during the war years. Rapid expansion of the liquefied petroleum and LP air-gas industries has been another important factor influencing the Laboratories testing program.

Research projects conducted at the Laboratories were closely connected to new appliance design techniques, trends in installation methods, and technical aspects of mixing and interchanging sendout gases.

Thirteen studies were completed and reported in the domestic field. Research bulletins covering the majority of the investigations either were published or are in the process of obtaining final committee clearance for publication.

Domestic projects were devoted to such studies as gas range oven and broiler design including the use of radiants; top burner ignition; height of grates; oven heat distribution and temperature control. The kitchen ventilation project was extended to cover a study of grease deposition, duct temperatures and fire hazards. Research related to central gas heating design charted performance data on forced air furnaces with modulating and intermittent type controls and of new types intended for closet or other confined space installation.

Material is being prepared for a progress report which when printed will give a comprehensive review of efforts to develop fundamental heat transfer data, for the design of gas-fired central heating equipment. The study represents a particularly important and outstanding project from the standpoint of long-range fundamental research.

Gas burner research covered such subjects as the effect of ambient pressures, prevention of port closure, pilot design, and burner design factors which provide maximum burner flexibility without readjustment.

Five major projects covering industrial and commercial equipment were under way during the year. A report on coffee urns was published and others on steam tables and dry food warmers are in preparation. Work is in progress on the application of forced combustion to commercial cooking equipment and on development testing of small high temperature glow tubes for industrial furnaces.

Publication of the first of a series of interim progress reports on mixed gas research has been authorized. The report will cover the interchangeability of various gases with coke oven gas as a base load. Experimental work has been completed on five other base load gases which under present plans will be covered in separate reports.

On the West Coast the Association purchased the land and building adjoining its present Laboratories. The new property almost doubles the amount of floor space available and is expected to take care of testing needs for the next ten years.

Revolution out of the kitchen

● As eager students of domestic science troop back to school they could do worse than seek answer to a profoundly disturbing social question: What's happened to family life in a dozen years in New York to cause a revolt against dining in the kitchen?

The *Journal of Housing* reveals the astonishing results of a study by the Women's City Club. In 1936 a poll among low-income families in apartments disclosed that 81 out of 100 preferred to eat in the kitchen. Another poll, taken this year, has uncovered the fact that now only 26 out of 100 families prefer the kitchen to a dining alcove or dining room. This is a social revolution of great significance.

But what happened since 1936 to change the habit? It was a movement to the left, or to the right, depending on the setup of your apartment. Possibly it marks the influence of Hollywood, or of radio soap operas, or of picture magazines. Such radical departure from a family custom is not made without a reasonable motive. Here and there you may discover an efficient dishwashing daughter who likes her mother to serve a meal on the kitchen table because it saves footwork in cleaning up and putting away the silver and china. But some uncharted social trend must have impelled 55 families out of 100 to turn, in only 12 years, against their favorite dining custom.

N. Y. Sun

Laboratories address

CHANGE of the official address of the American Gas Association Testing Laboratories from Cleveland 14 to Cleveland 3, Ohio, has been announced by Edwin L. Hall, director.

Estimating future peak loads

BY CHARLES P. SMITH

Chief Gas Dispatcher,
Pacific Gas & Electric Co.,
San Francisco, Calif.

As we look forward, there are two major problems confronting the gas industry in the West. The first problem—Where are we going to get our future gas supply?—is in the process of being answered by the magnificent efforts our industry is making to import gas from other states where there is a surplus. The second problem—How are we going to meet the tremendous peak loads of the future?—remains to be solved. It is my purpose to discuss this problem as it now appears.

Peak loads are caused by cold weather. With the general use of gas for space heating which has developed in recent years, most of the homes within reach of our mains use gas for this purpose.

The result has been to impose large day-to-day changes in customer demands in wintertime, due to the variability of winter weather. In Northern California, for instance, this effect has now reached the point where each degree change in mean temperature causes a corresponding 18,000 M.c.f. change in the daily load during winter months. Thus when the temperature drops from 50° to 45° from one day to the next, the load is increased by about 90,000 M.c.f.

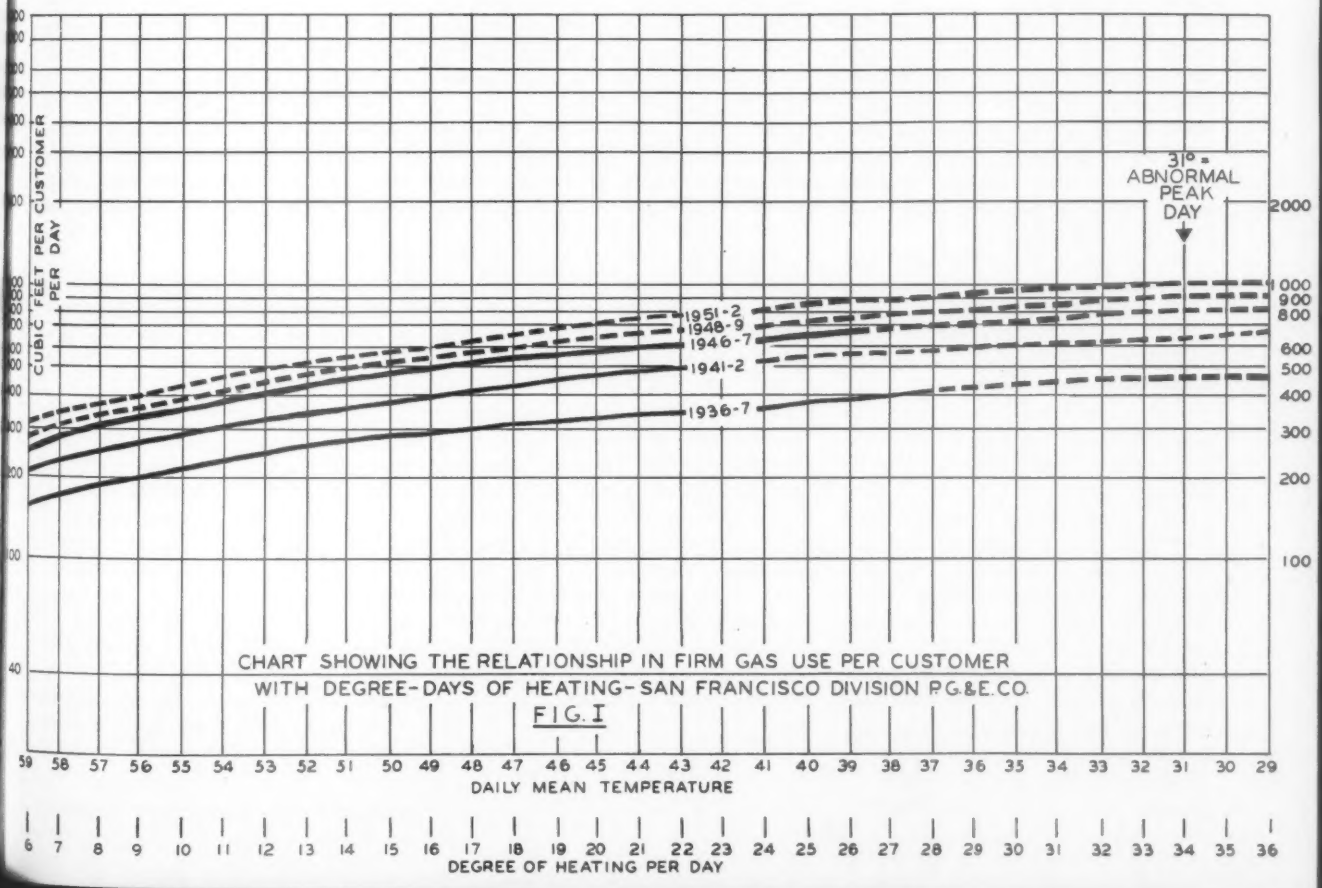
Figure 1 shows the relationship between load and temperature for San Francisco. The relationship is not exact, since temperature is not the only factor influencing human comfort, but it is sufficiently close to provide an operating index.

In a normal winter the coldest mean temperatures encountered in coastal areas of California are in the middle forties, and in the valley areas the high thirties. The air masses which cause these normally cold days arrive in the West after passing over the waters of the North Pacific Ocean, where they are warmed.

Periodically during the winter, at intervals of about six days, great masses of cold air sweep southward from the Arctic over the plains of Western Canada and the middle western United States. The Rocky Mountains usually confine these cold and dense air masses and prevent them from moving westward. However, two or three times each year they become deep enough to cross the Rockies into the Pacific Northwest and inter-mountain states. Even so, the mountain ranges along California's north and eastern border usually prevent the invasion of California.

At intervals of several years the Arctic air masses become sufficiently deep, and other meteorological processes suf-

Paper presented September 15, 1948 at Pacific Coast Gas Association annual meeting in Santa Cruz, California.


CUBIC FEET PER CUSTOMER PER DAY
31° = ABNORMAL PEAK DAY
2000
1000
900
800
600
500
400
300
200
100
1951-2
1948-9
1946-7
1941-2
1936-7
CHART SHOWING THE RELATIONSHIP IN FIRM GAS USE PER CUSTOMER
WITH DEGREE-DAYS OF HEATING-SAN FRANCISCO DIVISION P.G.&E.CO.
FIG. I
59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29
DAILY MEAN TEMPERATURE
6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36
DEGREE OF HEATING PER DAY

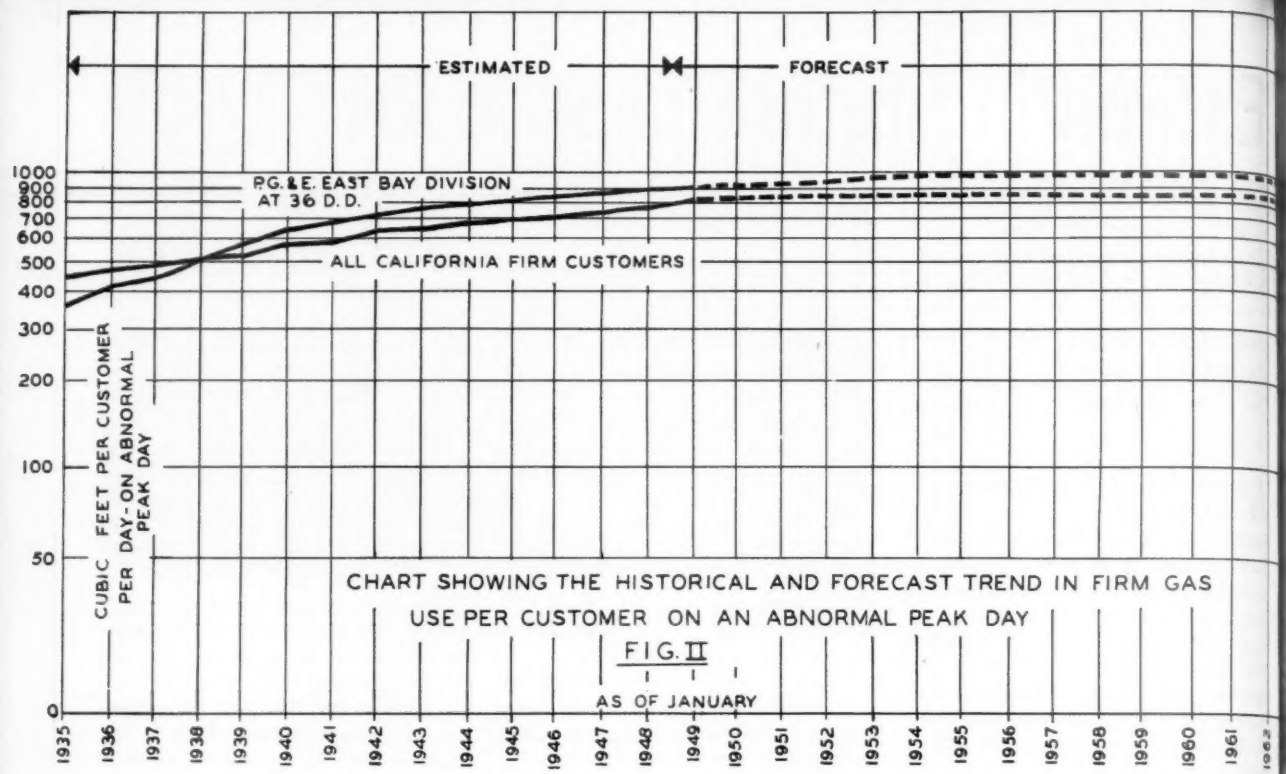


CHART SHOWING THE HISTORICAL AND FORECAST TREND IN FIRM GAS USE PER CUSTOMER ON AN ABNORMAL PEAK DAY

FIG. II

ficiently favorable to permit the cold air to sweep on over the Siskiyous and Sierras, and California experiences unusually cold weather.

Records of past years indicate this has happened in ten winters since the start of official observations in 1871, the most recent being in January 1937. There is good evidence of several other cold waves in the early and middle 1800's in unofficial records, some of which appear to have been more severe than any in the official record.

The longest span between two such winters has been 11 years. The coming winter will be the twelfth since the last major cold wave. We must therefore conclude that not many winters will pass before this happens again.

Armed with this knowledge, let us now investigate the factors which determine: What the load will be in future cold waves.

For several years, California utilities have fixed their peak-day potential load estimates on a theoretical "abnormal peak day." Northern California utilities base their estimates on the coldest daily mean temperatures in the official record, most of which were observed in 1932 or 1937. In Southern California the estimates are based on temperatures equalling in coldness January 22, 1937. We cannot say that these temperatures are the coldest possible, but they are the coldest which the various operating companies consider it reasonable to be prepared against, in gauging the adequacy of their supply facilities, and they are undoubtedly within a very few degrees of the coldest possible.

Data have been assembled from the potential abnormal peak demand estimates of all California utilities to show the historical trend which is indicated by the heavy solid line in the left half of Figure II. The values were determined by dividing the total potential firm demand on such a day by the number of firm customers, thus placing the trend on a firm-use-per-customer basis.

The solid thin line shows the same historical trend for Pacific Gas & Electric Company's East Bay Division. Since the Oakland temperature is colder than the state-wide average on such a day, the use-per-customer is naturally higher. The trend of the East Bay curve shows deceleration in the rate of increase in use each year, and the extension of this curve into future years indicates that by 1953 or 1954 the peak day use-per-customer will have ceased growing. After that it is extended into the future as a level line.

This deceleration in the rate of use-per-customer growth is apparent on similar charts for all of the larger sections of Northern California, which include some 38 percent of the total number of firm customers and 49 percent of the potential abnormal peak firm demand in the state.

For the purpose of this study, the state-wide trend is extended into the future with a decelerating growth approximately in parallel with the trend indicated for the East Bay Division, and similarly reaches saturation in 1953 or 1954.

We now have the means of predicting what the peak-day use per customer will be and can proceed to estimate how many firm customers there will be in future years.

The number of customers is directly related to the population of the state, since most of the populated areas receive gas service. Figure III was prepared to show the historical trends.

The growth of California's population has occurred in waves. With the advent of World War II, the rapid growth of California's industry set off a new wave of population growth indicated by the annual dots from 1942 to 1948. The population trends prior to 1941 were determined from Federal Census reports. The annual estimates

from 1942 to 1948 are those issued by the California Taxpayer's Association.

The extension of these trends into the future is a matter of opinion. I have drawn three curves which fit the observed points of the most recent wave from 1942 to 1948. The first is considered a high rate of growth contingent on favorable economic conditions. The second is considered a low curve contingent upon early slowing of the rate of growth which might be expected with unfavorable economic trends, or other influences such as a prolonged water shortage. The third curve is a mean between the high and low curve trends.

As evidence in support of these trends, I cite the following independent forecasts:

(1.) Professor Wm. A. Spurr, professor of business and statistics at Stanford University, prepared three forecasts for 1960, based respectively on his estimate of migration and natural increase, a logistic curve, and a projection by proportion of the national population. The average of his three forecasts, 14,400,000, is very close to the 14,250,000 indicated by my high curve of Figure III.

(2.) The research department, California State Chamber of Commerce, recently published a forecast of 12,545,100 for 1960. This is close to the 12,350,000 indicated by my low curve of Figure III.

(3.) The State Reconstruction and Reemployment Commission has prepared an unofficial revision of their 1946 forecast indicating 13,605,000 for 1960. This is very close to the 13,300,000 indicated by the mean curve of Figure III.

In view of the wide differences and the complex factors involved, it seems prudent to use neither the high nor the low estimate. The mean curve is used hereafter, indicating 13,300,000 population in 1960 and 14,400,000 in 1970.

The inset in the lower right of Figure III shows the relation between the number of firm customers and population. During 1940, 1941 and 1942, there were, on the average, 25.5 customers per hundred population.

During the war years this trend fell, due to inability of home construction to keep pace with the population growth. In 1947 it started upwards and is expected to reach prewar levels by 1950 or 1951, after which the relationship is considered static.

In the middle right of Figure III is shown the historical and forecast trend of the number of firm customers. The future trend is simply the product of the predicted population and the expected 25.5 customers per hundred population.

Using the years 1960 and 1970 as vantage points, we thus determine that: In 1960 we must expect to serve 3,420,000 firm customers, and in 1970 3,680,000 firm customers.

Figure II shows that the state-wide firm use per customer on an abnormal peak day would average 840 cubic feet after 1953. In 1960, we must therefore expect a potential peak firm demand of 2,875,000 M.c.f. and in 1970, 3,130,000 M.c.f.

Natural gas supplies to meet future peak loads will be available from the following sources:

1. California oil—well gas production.
2. California dry gas production.
3. Import gas from other areas.
4. Gas from storage projects. *(Continued)*

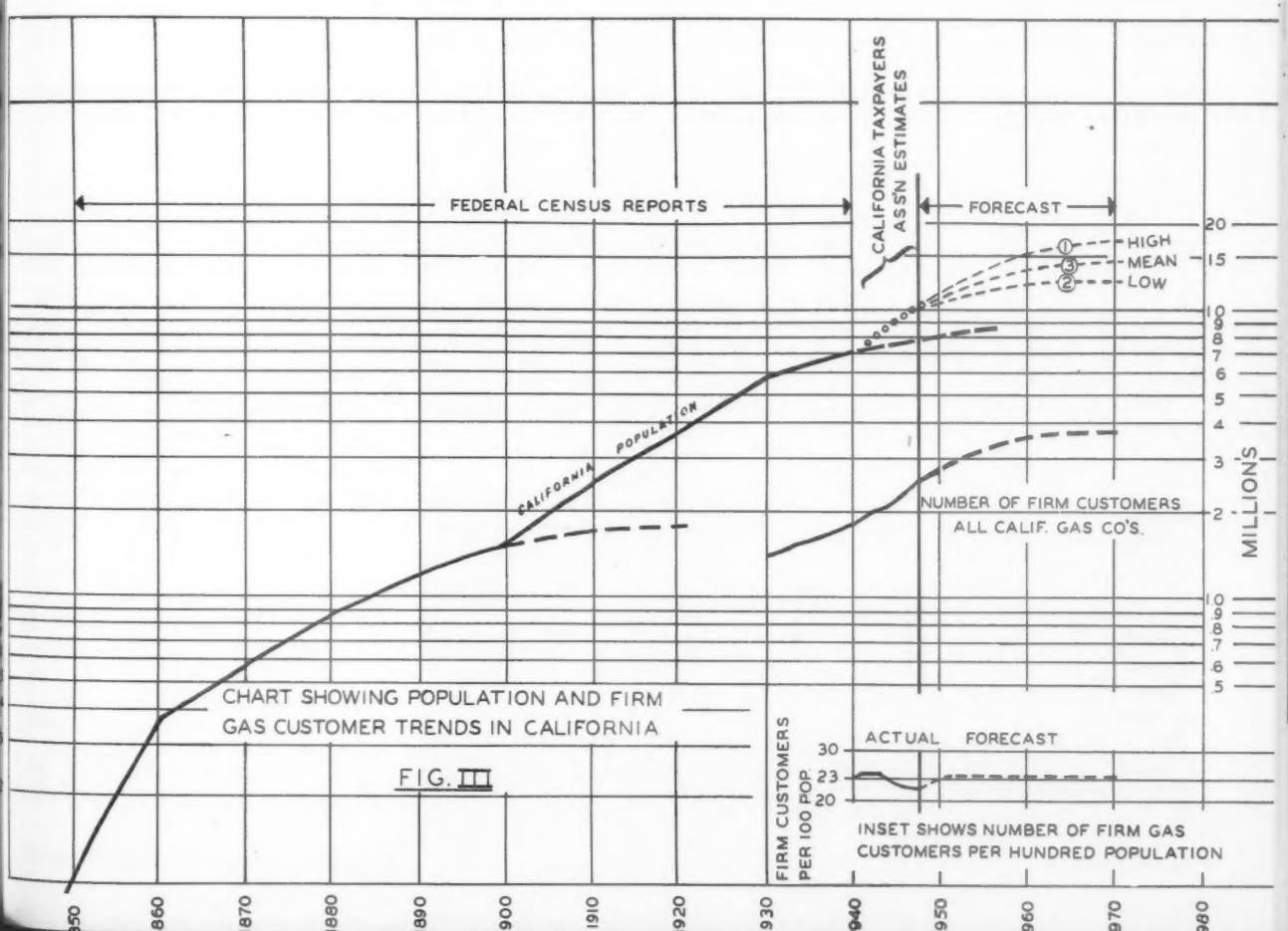


CHART SHOWING POPULATION AND FIRM GAS CUSTOMER TRENDS IN CALIFORNIA

FIG. III

5. Emergency gas diverted from the repressuring.

The estimation of the quantities available 11 and 21 years distant is necessarily in the realm of speculation. The rates to be available from California dry gas fields will be influenced to a great degree by the speed and extent to which the importation of a substantial share of the state's annual requirements is achieved. Trends are indicated in Figure IV.

FIGURE IV—ESTIMATED MAXIMUM RATES WHICH MIGHT BE AVAILABLE FROM CALIFORNIA FIELDS

Year	*Regular Production*	*Emergency (1) Gas*	*Underground (2) Storage*	*Total*
1948	1,520	100	300	1,920
1953	1,045	150	500	1,695
1960	930	50	500	1,480
1970	650	0	500	1,150

(1) Diverted from injection uses.
(2) Maximum rates considered likely from present and proposed field storage projects.
Volumes in million c.f. per day rate.

These trends were developed by Arthur L. Hill, petroleum engineer, on the staff of the Pacific Gas & Electric Company. While they are based on a consideration of the probable effect of various import underground storage and repressure projects thus far considered, they should be regarded as indicating only the direction and order of the supply due to the complexity and interrelation of our fuel economy.

In addition to the supply available from California fields, projects have been announced by the various California utilities to import gas from the Southwest. If fully developed, they will yield 405 million c.f. per day to Southern California, and 400 to Northern California, or a total import rate of 805 million c.f. per day.

The total supply available from California fields and import projects will therefore be in the order of 2,285 million c.f. per day rate in 1960, and 1,955 million c.f. per day rate in 1970.

We all know that our customers' demand for gas varies from hour to hour even on a peak day. Studies during recent years have indicated that about 75 percent of the day's firm load will occur between 7 A.M. and 9 P.M., and 25 percent in the remaining ten hours during cold weather.

If the daily gas supply is produced at a steady hourly rate, 58 percent of the day's production will occur between 7 A.M. and 9 P.M. Thus, 75-58, or 17 percent of the day's firm demand must be satisfied from holders, line pack and standby facilities.

In 1960 this will require 489 million c.f. of storage or equivalent, and in 1970, 533 million c.f.

There are now holders in the state having the total rated capacity of 246 million c.f., which will probably be increased to around 300 million c.f. by 1960. It is estimated that about 150 million c.f. will be available from line pack, leaving some 39 million in 1960 and 83 million in 1970, to be received from standby plants. Present standby facilities in the state are capable of delivering in excess of these quantities in a 14-hour period; however, it would be imprudent to consider that the full rated storage capacity could be withdrawn from all the holders in the state, and the excess of manufacturing capacity may be considered as an offset to this act.

For the purpose of simplifying this study, it was decided to make the assumption that holder or line storage and standby manufacturing facilities would be maintained at a level adequate to permit the hourly loads to be equated with the daily supply.

This will permit us to make a direct comparison of potential peak load with supply in 1960 and 1970.

In 1960 there is indicated a natural gas supply of 2,285 million c.f. to meet a potential 2,875 million c.f. load. This leaves 590 million c.f. per day to be made up from some other source. In 1970, the same comparison shows 1,955 million c.f. natural gas supply to meet 3,130 million c.f. potential load, leaving 1,175 million c.f. to be obtained from some other source of peaking gas.

We are particularly fortunate in California in the relative infrequency of cold weather. Based on a study of the past 17 winters and covering the period from October through April, as shown on U.S. Weather Bureau official records, the coldest daily mean temperature having the probability of one day in San Francisco is 40° and in Los Angeles 46°. These are respectively nine and five degrees warmer than the abnormal peak day temperatures. The corresponding firm demand would be about 85 percent of the abnormal peak. Thus the final 15 percent of the potential peak demand has a probability of occurring less than one day per year. In 1960, demand represented by this 15 percent is 432 million, and in 1970, 470 million cubic feet.

Similarly, the coldest temperature having a probability of being reached on five days per year is 44.2° in San Francisco, and 48.7° in Los Angeles. The firm load would be 76 percent of the abnormal peak. Thus, the final 24 percent of the supply capacity required for the peak day would be used on less than five days to supply firm customers. The corresponding quantities are 690 million c.f. per day in 1960, and 753 million in 1970.

These probabilities limit the problem of providing additional gas to those types of peaking relief requiring the bare minimum of investment. For practical purposes, we can ignore the operating cost of this peak day relief, because it will be used so infrequently.

A number of projects have been studied in recent months for which cost estimates are available. They are listed on Figure V for comparison.

FIGURE V—ESTIMATED COST PER M.C.F. CAPACITY OF VARIOUS PROJECTS STUDIED

	Estimated installed cost M.c.f./day capacity
1. Oil gas plant (50 million c.f./day capacity)	$250.00
2. Storage in 26-inch pipe laid as a pipeline (40 million c.f. project)	119.00
3. Storage in high pressure bottles (20 million c.f. project)	82.00
4. Storage in standard ½ inch wall 26-inch pipe racked above ground and working at 26,000 p.si. stress (20 million c.f. project)	75.00
5. Propane-air Plant, 50 million c.f./day capacity (natural gas equivalent) with storage for one day's operation	12.50

The costs shown in Figure V are based on the in- *(Continued on page 40)*

Architect's drawing of one section of 100-acre Hancock Village. The project will contain 789 gas ranges and gas refrigerators plus other gas equipment

Relieving the housing shortage

Notable progress reported by Boston Consolidated Gas Company illustrates the extensive activity and advances which gas companies in different sections of the country are making in the highly competitive housing development field.

The gas company's apartment-builder-dealer division, under its superintendent, Henry A. Kievenaar, has scored particular successes in three large building projects within the past year.

Outstanding among these is the 100-acre Hancock Village development of the John Hancock Mutual Life Insurance Company in the Brookline-West Roxbury area in Massachusetts where the latest construction techniques and most modern gas equipment are expected to make a substantial contribution to the relief of the critical housing shortage.

The Village, which is now more than 50 percent completed, will contain 789 family suites. Each suite will have two floors and be architecturally harmonized in a way that will give charm and variety to the project as a whole.

When finished, the project will have 789 gas ranges, 789 gas refrigerators, 250 gas water heaters, and 250 gas-fired, central heating hot water boilers. In addition, the garages will be heated with 12 unit gas heaters, and the laundry rooms, which are separate, will contain 24 additional gas water heaters and 24 gas clothes dryers.

This project is unique in many respects, not the least of which is the unusual handling of the heating problem. Gas boilers are installed in small but adequate utility closets located at approximately the second floor level, generating heat for a circulating hot water system fed through steel pipe embedded in the concrete floor slabs.

Each gas boiler serves from one to four suites, depending upon the particular group served.

A high velocity pump is installed at each boiler location in the return main forcing return water from the apartments through the boiler and to each room in an apartment. Every apartment is equipped with an individually controlled thermostat which operates a motorized valve on the return line.

When an apartment requires heat, the valve is automatically opened allowing

Typical courtyard in Hancock Village. The community will contain the most modern gas appliances

water to circulate through a system of coils in the floors of the different rooms. When the thermostat in the apartment is satisfied, the motorized valve closes, thus preventing further circulation of hot water. As soon as the last thermostat in the apartments served by a particular boiler is satisfied, closing the last motorized valve, the pump is automatically shut down.

On the next cycle, the first apartment calling for heat automatically starts the circulating pump. These apartments are equipped with the new type heating system-radiant heat, and this is enhanced by the individual temperature control for each tenant.

Boiler water temperature is maintained at 140° F. The water is fed to the heating system through a mixing type water valve, which is installed in the hot water main at the boiler. Cold water is supplied to this valve from the return main through a by-pass around the boiler.

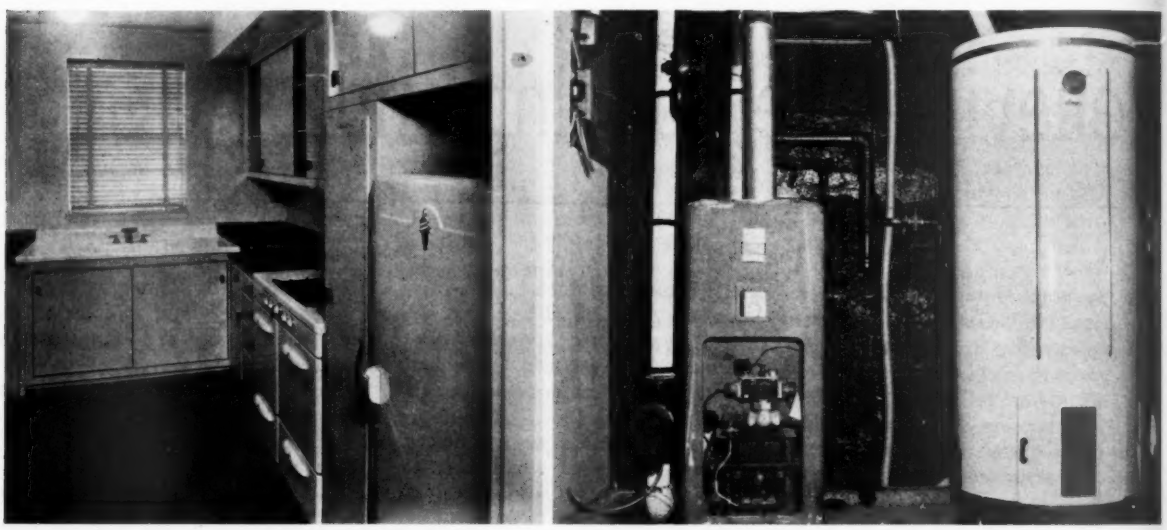
Hot water for domestic purposes is supplied by storage type automatic gas water heaters, normally located adjacent to the heating boiler. Domestic hot water is supplied from these storage heaters at a temperature of approximately 140° the year around. Storage capacity is varied in accordance with the number of apartments served.

Fairfield Gardens, in Watertown, Mass., the largest privately owned veterans' rental project in New England, is another large development to be served by Boston Consolidated Gas Company.

Of a total of 308 apartments, 159 are now occupied with the balance scheduled for completion in the near future. Gas ranges, gas refrigerators, automatic gas storage water heaters, and gas winter air conditioners are specified.

The third project, Gardencrest, in Waltham, Mass., will have 289 dwelling units, also the multi-family, garden-type apartments. Gas heating originally was specified on an individual tenant basis, but heating restrictions forced a change in this policy. However, gas ranges and gas refrigerators will be used in all the units.

Another interesting project is the Veterans' Housing Program sponsored by the City of Boston and involving 1,000 dwelling units at different locations throughout the city. Gas originally was specified for heating until restrictions interfered. Boston Consolidated Gas Company will supply service for cooking and water heating and some of the refrigeration, the choice of which was left to the option of the occupant.



(Left) Interior of a Hancock Village kitchen. (Right) Gas boilers will generate heat for circulating hot water systems fed through pipe imbedded in concrete

Errors in advertising I try not to repeat

• Failure to define objectives of advertising policy—including the failure to secure widespread and wholehearted agreement on the objectives in order to get proper promotional support.

• Improper timing of the campaign—know when to start and when to stop. By constantly bringing to a discussion progress reports obtained from several sources, you can maintain intelligently the flexibility of thought and action which should be an essential part of an advertising campaign.

• Inadequate weight or pressure of advertising against the objectives—sending a boy to do a man's job.

• Incorrect appeals—including lack of demand for action (just "keeping one's name before the public")—not enough testing of appeals.

Why can't advertising copy be tailored in advance to fit the minds and needs of the people it aims to influence? Why shouldn't every new advertising theme be subjected to certain tests before a business concern backs it with its money?

• Inadequate promotional support. As far as is practical, everyone who is to share in administering the advertising policy should have a share in comparing your list of objectives, or they should have had a right to criticize them as they are composed by you and others.

• The assumption that your company, and what you say about it, is bound to be interesting, no matter how you say it.

I think a considerable amount of progress would occur ultimately in public utility advertising if everybody concerned with it, from the top brass down to the copywriters, would assume that nobody is waiting up for the next copy of the newspaper in the hope that a public utility advertisement will be in it.

Excerpts from paper by Royal M. Alderman, vice-president, McCann-Erickson, Inc., New York, at the New Jersey Gas Association annual meeting in Spring Lake, N. J., September 10, 1948.

Research at work

Domestic gas research advances

R. J. Rutherford

Gas utilization equipment does not automatically improve in efficiency and performance and it does not automatically require less servicing, become easier to install or provide more conveniences. These things come about because of research carried on by groups such as the Committee on Domestic Gas Research, American Gas Association, and by research independently carried on by the manufacturers of equipment.

The gas industry's domestic gas research program, one of four research programs carried on under the general direction of the PAR Committee, is charged with the expenditure of approximately $150,000 a year in the field of domestic gas utilization research. Utilities and manufacturers alike have benefitted from the efforts of this growing activity.

A PAR activity

Twelve gas company executives and eight manufacturing company executives compose the Committee on Domestic Gas Research which is responsible for the successful operation of the program. This group decides what projects shall be undertaken, at what cost and at what institution. Its decisions regarding new projects, extension of active ones and appropriation of funds, are reviewed and passed upon by the General Research Planning Committee and the PAR Committee.

Over-all objectives of the committee are: First, to fill the technical vacuums that may exist in knowledge concerning the utilization of gas from ignition to venting.

Second objective, to stimulate manufacturers to pursue their own research and development.

Third, to sponsor joint research with other industries where the areas are the same. For example, corrosion of water heater tanks, warm air duct design and data.

Six of the committee members serve as chairmen of Technical Advisory Groups which handle technical matters pertaining to projects in six different areas: cooking, water heating, central space heating, direct space heating; burners, controls and accessories; and summer air conditioning.

For convenience, the groups usually request their chairmen to designate one of the members to act as individual "technical advisor" for a given project, so that he can thoroughly familiarize himself with the project and follow its progress, particularly during the intervals between meetings. This is all volunteer work.

While the responsibility of instituting new projects rests with the research committee, that group welcomes recommendations from the industry and from the Technical Advisory Groups. Most material reaches the committee in this manner.

In order for the research committee to make the most intelligent and equitable decisions in connection with the projects, three of its members are designated as a Project Classification Subcommittee. This committee implements the desires and intentions of the research committee as regards the fields of research that should be attacked, and makes suggestions to the Technical Advisory Groups regarding new projects. It also reviews all new projects and extensions of active projects before they are acted upon by the research committee.

To date the Committee on Domestic Gas Research has published more than 45 bulletins on various phases of the fields already described. Most of the results of this work, while labeled domestic, apply equally to commercial and some even to industrial utilization.

Research projects have been assigned to an imposing list of institutions including: A. G. A. Testing Laboratories, Institute of Gas Technology, Battelle Memorial Institute, Purdue Research Foundation, Laboratory of Arthur D. Little, Inc., Case School of Applied Science, National Bureau of Standards, Pennsylvania State College, U. S. Bureau of Mines, Rutgers University, and University of Illinois.

Broad tasks

Here are some of the broader tasks facing this active research group:

Proper and adequate installation to insure the maximum use and convenience from the improvements built into the appliances must continually be kept in step.

Appliance performance itself depends upon certain basic factors, such as combustion, ignition, heat capacity, heat distribution or concentration, venting, ease of adjustment, and cleaning and convenience. To meet the increasingly exacting needs and desires of customers and the increased technical advances of competition, these factors must be conveniently investigated and the applications constantly improved.

A better understanding must be developed concerning the relationship of gas equipment to the other parts of heating systems, the hot water supply systems, new types of radiation and heat duct systems.

Maximum activities

Due to the increased cost of conducting research, it is likely that the maximum number of active projects at one time has been reached. To a greater extent, therefore, the task in the future will be to expedite projects and to assure that they are as fruitful, technically, as possible. The high calibre of the engineers on the Technical Advisory Groups assures the effective prosecution of this work.

The entire program of the American Gas Association under the PAR Committee is looked upon with considerable envy by other industries. The returns per dollar of money spent are considered outstanding. Cooperative research requires not only cooperation between utilities and manufacturers, but also between individuals within and without the program so that the gas industry can tell the world, in the words of that famous old proverb, "There is no fuel like an old fuel."

Excerpts from a paper presented by R. J. Rutherford, Worcester Gas Light Co., Worcester, Mass., and chairman, A. G. A. Committee on Domestic Gas Research, at the New Jersey Gas Association annual meeting in Spring Lake, N. J., September 10, 1948.

Excess nitrogen removal reviewed

H. D. Hancock

Practical and economical methods of removing excess nitrogen from natural gas to improve the heating qualities of the gas and permit the recovery of other salable hydrocarbon products were discussed during a recent two-day conference in Amarillo, Texas, of nearly 100 leading gas engineers and executives of operating and research departments of major gas pipeline and related companies.

Sponsored jointly by the U. S. Bureau of Mines and the American Gas Association in connection with their cooperative study of nitrogen-removal problems, the conference emphasized several benefits of removing excess nitrogen from natural gas at its source in the field. Aside from the improved heating quality of the natural gas, the removal of nitrogen would increase the capacity of long cross-country pipelines in terms of measured heating units of fuel, eliminate the non-combustible element in natural gas, and allow the extraction of such heavy hydrocarbons as propane and butane, which are desired for separate sale.

Work on the nitrogen-removal problem is being conducted by the Bureau of Mines at its Amarillo helium plant with P. V. Mullins, helium engineer, in direct charge of the problem. The natural Gas Department of the American Gas Association is cooperating through its Technical and Research Committee, H. D. Hancock, chairman, and a special subcommittee under the chairmanship of A. F. Bridge, Southern Counties Gas Co., Los Angeles, California.

At the Amarillo meeting, Bureau engineers presented data on developments in their study of the subject, and led discussions of technical and economic phases of the problem. As part of the program, engineering contractors presented information on prospective nitrogen removal processes. Irving Resnick, chief process engineer, Stacey-Dresser Co., Cleveland, Ohio, and W. W. Bodle, assistant manager of the chemical division, J. F. Pritchard and Co., Kansas City, Mo., presented information on prospective means for nitrogen removal by low-temperature processes.

Howard Kehde, process engineer, Foster-Wheeler Corp., New York, presented information on gas separation and prospective nitrogen removal by the hypersorption process, a new method now being applied industrially for large-scale separation of gaseous mixtures by fractionation on activated charcoal in a continuous process. All three speakers gave estimates of investment and operating costs for projected nitrogen removal plants based on current information. Particular stress was placed on economic benefits to be gained by increased recovery of propane, butane, and heavier hydrocarbons.

The presence of ten percent or more of nitrogen detracts appreciably from the heating value of the natural gas per unit volume, may limit or prohibit the extraction of heavy hydrocarbons such as propane and butane, and reduces the capacity of long cross-country pipelines in transportation of a maximum of fuel as measured in heating units. Nitrogen in natural gas corresponds to non-combustibles, or ash, in coal. Nitrogen removal from the gas at its source in the field would save expense in handling and transmission, besides overcoming other objectionable features.

Natural gas from certain large reserves—notably those in the Texas Panhandle and Hugoton (Kansas) fields—contains an average of 10-15 percent of nitrogen, with as much as 30 percent in gas from some parts of the fields. These sources supply natural gas transported through a number of the most important cross-country pipelines and, therefore, the principal interest in nitrogen removal centers in these reserves.

It is estimated that about $500 million is invested in facilities to transport gas from these fields and, assuming an average of 12 percent nitrogen, about $60 million of this amount and a like proportion of operating and distribution costs are devoted to handling the inert gas—nitrogen. It is estimated that about 4,000 tons of nitrogen per day are transported over an average distance of 800 miles.

Particular emphasis was given at the meeting to possible means for removal of nitrogen by low-temperature processing—liquefaction and fractionation—which is similar to the method used by the Bureau of Mines in extracting helium from natural gas. The Bureau has installed an experimental nitrogen removal pilot unit at its Exell Helium Plant near Amarillo to investigate this method under the cooperative study.

Water heater tank demonstration

In an effort to study the high safety factors of water heater tanks that use all the different fuels, an effective demonstration of tank explosions was conducted by Watts Regulator Co., Lawrence, Mass., manufacturers of temperature and pressure relief devices, on September 14 at Old Orchard Farm near Doylestown, Pennsylvania.

Four water heater tanks were exploded under different conditions and talks were given by representatives of fire insurance underwriters, city plumbing inspectors and others. Among other features, the demonstration was designed to show the over-all importance of temperature in tank explosions, and also to demonstrate the impossibility of explosion, regardless of pressure, when water in the tank is less than the boiling temperature.

The meeting was presided over by John Dale, National Research Committee, American Society of Sanitation Engineering. The American Gas Association was represented by Robert C. Bryce, Philadelphia Electric Co., technical advisor, A. G. A. project DGR-5-WH, "Investigation of the Effectiveness of Temperature and Pressure Relief Devices and High Temperature Gas Shutoffs for Gas Water Heaters"; A. A. Kampman, research engineer, A. G. A. Testing Laboratories, and Eugene D. Milener, coordinator, A. G. A. utilization research. Mr. Milener was a guest commentator.

The prosecution of research project DGR-5-WH liaison has been established with the Nat'l Research Com., A.S.S.E.

Ohio Fuel Gas home service program uses novel approach to equipment lessons

Junior miss gets into hot water

BY HELEN L. KIRTLAND

General Home Service Director, The Ohio Fuel Gas Company

Twenty-inch plywood dolls representing hot water uses for teen-agers are used in "Pin-Up Parade"

When the school doors open each September, home service advisers all over the country start their annual rounds contacting home economics teachers with offers of educational material designed to make lessons on equipment more vital and more interesting. At The Ohio Fuel Gas Company we feel that our program for schools is one of the most important phases of our activities during the year.

These personal visits, together with our annual home economics teachers' dinners early in the school year, give us an opportunity to dramatize material "hot off the press" which we've planned expressly for schools. And each year we are on our mettle to come forth with new, practical ideas for presentations which will teach equipment in such a way as to appeal to teen-age girls.

One year we told the kitchen planning story to home management classes; another, the care and use of the range story was presented in a 40-minute demonstration. Once developed, these programs have carry-over value from year to year with minor changes to bring them up-to-date. This year we felt it was time to bring the gas water heater into the limelight.

Because of its everyday acceptance, the automatic gas water heater is often overlooked for the essential appliance it is. For that reason and because it is a piece of equipment high school girls know little about, our company felt that a talk on this subject, cleverly devised and presented, would be of great promotional value. Such a project gives us the opportunity to present our story in an educational way. Home service alone can offer hot water to the Junior Miss in terms of pleasant uses.

In making the plans we decided which hot water subjects we wanted to use and tried to relate each to the interest of the Junior Miss. Since many girls do their own lingerie and sweaters, laundering was discussed from that angle. Cleaning was touched on lightly. Short cuts and ways of making work easier were stressed. Of course, special emphasis was placed on dishwashing, a job most teen-age girls are required to do.

Grooming is always a delicate subject to discuss with the sensitive teen-ager. However, all adolescents are interested in themselves, their own appearance and that of their friends. Therefore we sugar-coated the bitter pill—good habits of cleanliness, with the fascinating subject of glamour.

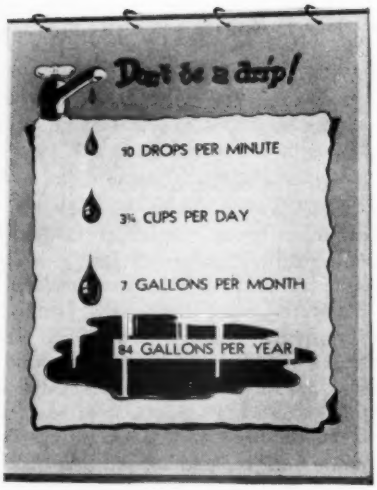
With this in mind, the "glamour girl" idea carried out with dolls presented itself. We know that there is still much of the little girl in teen-agers. They seem to love anything in miniature, and though they seldom admit it, dolls still pull at their heartstrings. The result is our "Pin-up Parade."

This parade features six plywood dolls, each representing a use of hot water for the teen-ager. Designed and constructed in our display department, the dolls are about 20 inches high (a size easily shown to a large class, but not too large to carry conveniently) and each has a sturdy standard so it will not tip over readily. Their clothes are painted on in gay colors, and then sprayed with clear lacquer to make them washable. We gave the dolls names descriptive of the information they offer.

To lead off the parade, we have our star performer—King Water Heater. Because the water heater is so often installed in an inconspicuous place, children forget that hot water does not just run out of the faucet. We tell them the story of the two Arabian Sheiks who visited Great Britain. The Sheiks were shown special honors by the government, and when they were ready to return to Arabia, British officials, wishing to make them a handsome gift, asked them what they would like. After serious consideration, they asked for two hot water faucets!

By making the water heater the drum major, we dramatize him as a very important piece of equipment in the home. We then ask the girls to suggest uses of hot and cold water in the home, and listing these on the board, we dramatize

REPAIR DRIPPY FAUCETS.
MIX HOT AND COLD WATER AT FAUCET.
USE COLD FAUCET WHEN SMALL AMOUNT OF WATER IS NEEDED.
DRAIN A BUCKET OF WATER FROM BOTTOM OF TANK REGULARLY.



Two large charts which dramatize with illustrations points which The Ohio Fuel Gas Company wishes to emphasize on the care and use of water heaters when King Water Heater puts in his appearance during the "Pin-Up Parade"

the importance of the faucet. At one meeting our own salesman listed more than 80 uses. This long list, in contrast to the few uses for cold water, sharply reveals personal comforts and conveniences afforded by a plentiful hot water supply.

While King Water Heater is getting his retinue in order, we discuss the proper care and economical use of heaters. Such points as the value of draining a bucket of water from the tank regularly, mixing hot and cold water at the faucet, and repairing leaky faucets immediately are brought to the attention of our Miss.

King Water Heater serves as a natural introduction to our pin-up girls who, after all, are pin-up girls because of the abundant water supply he offers.

First of the glamour girls is Helpful Hannah, who steps briskly along with her mops and brushes. She carries in her hand a real minit mop and her hair is a gleaming copper mesh cleaner. Helpful Hannah is a cheerful worker, not only at school and social activities, but also at home where her family can enjoy her. She tells how hot water makes easy many home chores such as dishwashing, cleaning woodwork, floors and furniture, and the like.

Our next star is that slick chick, Susy Suds. Susy is a sweater girl—the average high school girl who is clothes-conscious and wants to know how to care for her wardrobe. We tell a story about Susy and her mishap with a new sweater due to incorrect laundering technique. Then we show the girls a sweater properly laundered. Susy gives us the opportunity to talk not only about the laundering of sweaters, but also of lingerie, gloves, and other personal items of clothing.

Behind Susy Suds is Goldie Glint—not a movie star—but a true pin-up girl with beautiful, shining hair—the aspiration of the teen-age miss. Goldie has real hair which we bought at the dime store and pasted on her plywood head. A blue bow to match her dress completes the attractive hair-do.

Her secrets for hair loveliness Goldie willingly passes on to her eager listeners. Tips on everyday care, shampooing, styling, and setting of hair are fun for youngsters, help tell a good grooming story which the teachers welcome and dramatize subtly the necessity for adequate hot water.

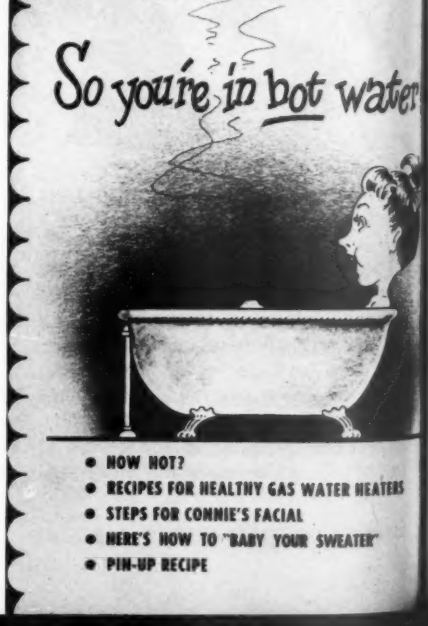
Strolling leisurely along behind Goldie Glint comes Connie Complexion, our peaches and cream Miss. Connie's presentation stresses cleanliness of the face and the entire body through use of plenty of hot water. She carries a real towel over her arm and is ready to plunge into a hot bath and have a brisk rubdown. Connie has a little story to tell on how to determine how hot your bath should be.

"If you get in the bath and you turn blue," she says, "it's too cold; if you turn red, it's too hot, and if you turn white, you surely needed it."

Like all good parades, our "Pin-up Parade" leads to a dramatic climax. King Water Heater is the star of our show, but his co-star, Miss Flame, brings up the rear. On her arm she carries a basket containing a miniature bar of soap. The wrapper is imprinted with the slogan, "Gas is Clean, too," followed by the company's name. Each girl receive a bar of this soap to take home, and, of course, is thrilled with the gift. One group of girls even asked Betty Newton (the name by which all The Ohio Fuel Gas Company's home service advisers are known) to autograph every soap bar!

To help us dramatize points in the hot water story from the gas company's point of view we have a set of large charts (22 by 28). The first chart presents our subject, "So You're in Hot Water." The humorous illustration of the teen-age girl in an old-fashioned bathtub brings a sparkle into the eyes of the youngsters. The second chart, "Don't be a Drip!" and the third, "Recipes for Healthy Gas Water Heaters" dramatize with illustrations the points to be emphasized on the care and use of water heaters when King Water Heater puts in his appearance.

As Susy Suds describes what she learned on laundering sweaters, we show the chart, "Baby Your Sweater," describing each step in the process. This information is developed in the American Gas Association Brochure, "Hot Water Magic." "Pin-up Pointers" illustrates the setting of pin curls to obtain several hair-do effects and is a chart that attracts partic- *(Continued on page 35)*


So you're in hot water
• HOW HOT?
• RECIPES FOR HEALTHY GAS WATER HEATERS
• STEPS FOR CONNIE'S FACIAL
• HERE'S HOW TO "BABY YOUR SWEATER"
• PIN-UP RECIPE

This illustration of a teen-ager in an old-fashioned bath tub appeals to the youngsters

Suggestions for alleviating one of the sore spots in public and employee relations

Tell your story to employees

BY C. J. ALLEN

Vice-President,
The Connecticut Light and Power Co.,
Waterbury, Conn.

C. J. Allen

As public relations is directly and professionally concerned with people and their opinions, it is important that those who practice it base their efforts on as sound and solid an understanding of the human animal as experience provides. Note that I say as experience provides, which often is very different from accepted or preconceived ideas. It is my belief that much public relations work and money is completely wasted precisely because in ignoring this experience it ignores what each of us knows beyond any shadow of doubt about our employees, their thinking and their interests.

In other words, if we are to achieve effective, creditable results in public and employee relations we have to take our fellow Americans as they are, making the best both of their virtues and their limitations, and not as we might wish they were, or think they should be. Though this point is obvious, it is something that both public relations folks and their bosses lose sight of too frequently, and at an altogether unreasonable cost in work, time and money.

The sad feature is that the most glaring examples of this oversight occur in the very area where public relations should be fulfilling its really urgent job —the building of good employee relations. Few persons, I imagine, will dispute the urgency of the task or its touchy complexity. Acquiring and maintaining good employee relations isn't something that even the ablest public relations department that could be assembled can do on its own. It requires the ready, willing cooperation of a whole company, and particularly of its top management. Let us assume, as one usually can, that this cooperation is obtained, that top management is aware of the value of good public and employee relations, and that it has as its aim the establishment of good relations insofar as better communications and communications media can do so. What now?

The ordinary employee of a large corporation, and particularly the new employee, may be pardoned if he considers himself a somewhat insignificant cog in a great machine with which he feels little, if any, meaningful relationship. There are innumerable cases on record of employees not having the slightest idea how the pieces that left their drill press or tool bench fitted into the motor, refrigerator, car, or what have you, which emerged from the final production line. Or of so-called bookkeepers with little knowledge of what happens to the data prepared by them in the daily humdrum of the local office.

This is likely far truer today with the key-punching efficiency of machine bookkeeping than it was when I dallied with the old Boston ledgers of the village plumber, back in Olneyville, R. I., long before the scratching of the bookkeeper's Spencerian pen was drowned out by the clatter of the tabulating machine. But these are the folks, mind you, who are constantly being urged to count their blessings under the free enterprise system. At the same time we might well ask why they should be expected to respond so eagerly when there is so little that they find understandable, and, therefore, satisfying in their work.

This unfortunate consequence is part of the cost of the extreme division of labor in an industrial society and of bigness in business. Both have brought great benefits and advantages and the modern America we live in would be inconceivable without him. But, like almost everything, they have a dark as well as a bright side, and you can't eliminate the dark side by ignoring it. You can reduce and minimize it, however; and public relations can help, but in order to do so you must have a very sure and accurate knowledge of what and how you want to attack.

Establish identity

It is here, I think, where one of the chief mistakes has been made, where the public relations material for employees has gone very far afield. Instead of concentrating upon breaking down the forbidding, complex mass of a big company into small, easily understandable, highly personalized parts which fit in with one another, public relations has too often failed to pay anything like sufficient attention to this very human aspect of the matter. It has turned rather to putting out slick, semi-professional employee magazines and booklets, and writing messages of inspiration and instruction studded with ten-dollar words to puzzle the not-too-well read Joe Gaspipe. Many of the magazines and booklets are well-written and well-printed, and often lavishly and expensively illustrated, but they lack frequently a really strong sense of identity with the employees for whose benefit they are supposedly published.

Now I am aware that the editors and management supervisors of, let's say, *International Flame*, the house organ for the 10,000 employees of International Gas and Electric, want to do a creditable and conscientious job. And, within their limits, they may *do* a conscientious job.

Paper delivered at the A. G. A. Convention in Atlantic City during the Accounting Section general session luncheon on October 6, 1948.

Points from an employee relations creed

- The likelihood of getting what you want to say across to all employees rises in proportion to your readership rating.
- Personal "name" items can do more than anything else to insure readership for your magazine.
- The stress should be on putting out a lively, popular employee's magazine or newspaper that employees naturally turn to, rather than one which aims only to inform or "educate" them.
- The fundamentals of easy readability for a mass audience can be given in one sentence: Let your words be simple and sentences short. Make it easy to read.
- Subjects as diverse and difficult as the atom, the solar system, the making of synthetic rubber, and economic theory can be made relatively easy and absorbing reading through apt, vivid analogies from experience and everyday life.

But, in the effort to appeal to such a mass group, they come out with a magazine that seems designed almost as much to attract the attention of the average individual citizen as that of their average employee. There's relatively so little in it of and about the individual employee himself, Joe Gaspipe. What with the trend toward arty pictures, high-flown inspirational messages, and serious "think" and information articles that Joe's supervisors believe will be good for him to read, poor Joe has a hard time getting himself in at all.

I am also aware that shifting the spotlight to Joe and his activities involves what is commonly taken to be a lowering of tone. Those who undertake to offer advice to employee publications on their content often sneer at and dismiss material of this type as being nothing but gossip and a pandering to workers who like it. In answer to this attitude some observations are called for.

First of all, raising the standards and practices of journalism is something that properly may be left to the professional press. Employee publications are altogether different in function and material from standard newspapers and magazines. Though they can often utilize profitably ideas, techniques, and innovations borrowed from journalism, their problems and needs are essentially of a special kind, demanding consideration of their own unique circumstances and requiring their own special particularized solutions.

Secondly, the real problem, the crucial problem for company publications is getting and holding employees' readership. If employees aren't reading the material you're putting out, obviously the whole procedure is a senseless waste of time and money. Stating this another way, the likelihood of getting what you want to say across to all employees rises in proportion to your readership rating. In order to get anywhere at all with employee material, you've got to have high readership, the one indispensable that public relations people and management ignore or forget at their peril.

With high readership you have solid ground under you on which you can build a continuing, long-range program. Without it even the best plans and materials must be built, at least partly, on thin air. When all employees eagerly grab up their copies of the weekly or monthly issue of their magazine, you have a situation where there already exists a strong group core, a social unity, that can be extremely helpful and effective in maintaining a high degree of loyalty and morale. The key question, of course, is "What makes for high readership?" And the hard truth, is that readership comes when Joe has a fair chance of reading about himself, his friends, and what they've been doing and talking about.

Names make news

You can call this trivia, gossip, or anything you will but you must exploit it if you want your fellow workers, from vice-presidents to janitors, to read what you put out for them as their paper. "Names make news" is as good a precept for house organs as for journalism, and no one who strives for a lively, popular employee magazine can afford to forget it.

Nobody is going to refuse to read about himself and his friends; so when you do a good job of reporting the doings of the various groups in your company, you gain at once the support of such deep-rooted human drives as egotism, vanity and simple friendliness.

It follows that personal "name" items can do more than anything else to insure readership for your magazine. Perhaps this is regrettable; perhaps employees should be greatly interested, for instance, in learning more about the Supreme Court's Hope Natural Gas decision; and perhaps in the brave new world logic and sweetness and light may have more to do with man and his interests than they do today. But in our world of 1948, as Jimmie Durante says, "them is the conditions which prevail," and we're either kidding ourselves or the boss when we refuse to recognize it.

I don't want to give the impression that I think all serious articles written for employees are a waste of print and space. On the contrary, they have a definite, valuable place, but what I can't emphasize enough is that they'll never have the readers, and thus the effectiveness, they should have unless the publication in which they appear is also plentifully supplied with personals, pictures or other material which command immediate employee interest.

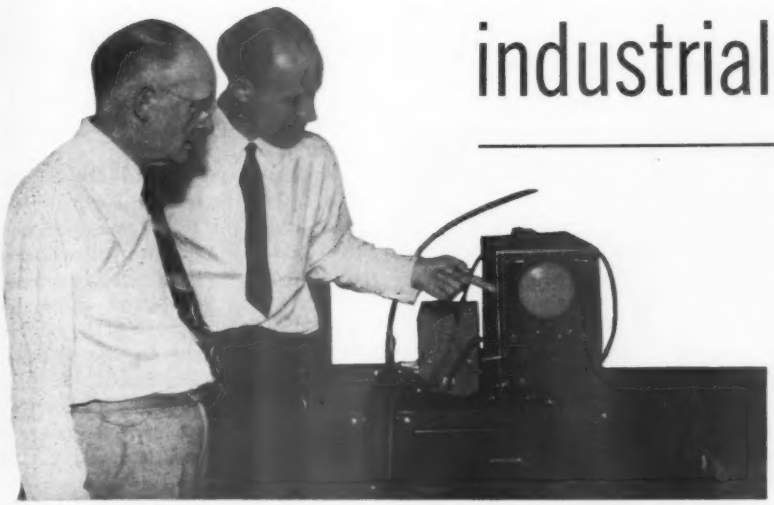
The stress should be on putting out a lively, popular employee's magazine or newspaper that employees naturally turn to, rather than one which aims only to inform and "educate" them. The education in the very real and changing problems that the management of any company faces, and which it is abundantly right and necessary to tell employees about, should come as sort of by-product of the house organ, but should not be its chief stock-in-trade. And paradoxical as it may seem, this by-product method is the one that produces vastly better results in getting workers to read and absorb the information that management wants them to have.

An alert public relations staff would be astute in reiterating this fact to its own top management, as there is often a tendency on the part of management to turn a house organ, or other publication, into a vehicle for the expression of management's own thoughts and ideas, and very little other than that.

Another aspect of employee readership, in relation to serious "think" articles needs mention and some reform. Even when the employee's magazine is highly popular, weighty educational pieces don't get the readers and results they should because they're written over the heads of *(Continued on page 44)*

Research project studies fundamentals of detonation processes

Combustion of industrial gases



Dr. Turin explaining to Ralph L. Manier, chairman, A.G.A. Committee on Industrial and Commercial Gas Research, the methods by which detonation combustion is studied and recorded

BY J. J. TURIN[1]
J. HUEBLER[2]

A PAR activity The American Gas Association has sponsored fundamental studies pertaining to industrial gases for many years. Combustion studies were originally undertaken by Surface Combustion Corporation under sponsorship of the A. G. A. Committee on Industrial Gas Research 1927. Many of these studies, originally embryonic in their character, have led to new industrial processes and applications which might otherwise have been delayed many years.

For various reasons, the war and postwar periods brought unusual attention to bear upon methods of releasing energy in extremely large and unheard of quantities in relatively confined volumes. The attempt to crash the sonic barrier in airplane flight focused attention upon jet modes of propulsion which fundamentally are combustion phenomena requiring extremely large energy releases per unit of volume. Gas turbines and their successful application in industry have further directed attention towards new and different combustion methods with the same requirement. High speed flame heating and rapid heating for forging are applications rapidly coming to the attention of all. The requirements presented by the above as well as many other applications demand that the gas industry shall widen its knowledge of combustion processes.

The current industrial gas research project, IGR-59, has been undertaken as an important part of the program in this field of the Committee on Industrial and Commercial Gas Research, American Gas Association. J. P. Leinroth, Public Service Electric & Gas Co., Newark, N. J., is technical advisor for the committee on the project.

Combustion as such is an old name, and the term is used to cover a variety of dissimilar processes. A definition is hard to give, suffice it to say[3] that when a rapid reaction of the oxidizable material takes place with the development of heat and usually the production of flame, the process is called combustion.

Much work has been carried out in the attempt to understand the fundamental nature of processes which come under the heading of combustion. However, because of the phenomenon is a statistical one which involves the interactions of millions of molecules at a single instant, there is a natural complexity to the problem which cannot be explained in elementary terms. For reason of necessity, therefore, combustion engineering has really become an art and perhaps should not properly be called a science.

Almost every engineering application starts with a problem and proceeds through the cut-and-try process involved in finding the solution to that problem. Burners are built and have been built for specific applications, without too much attention being directed towards the fundamental reason for a certain flame or type of burning.

Most important has been: "Does the result fit the application?" Following a program of this kind many improvements are developed. What not to do is easily learned. How to do something different and something better for a specific application does not by this procedure follow from the application of fundamental knowledge of the processes involved. Rather the development is carried out on the basis of applying a fund of experimental and engineering know-how gained from working with combustion problems generally.

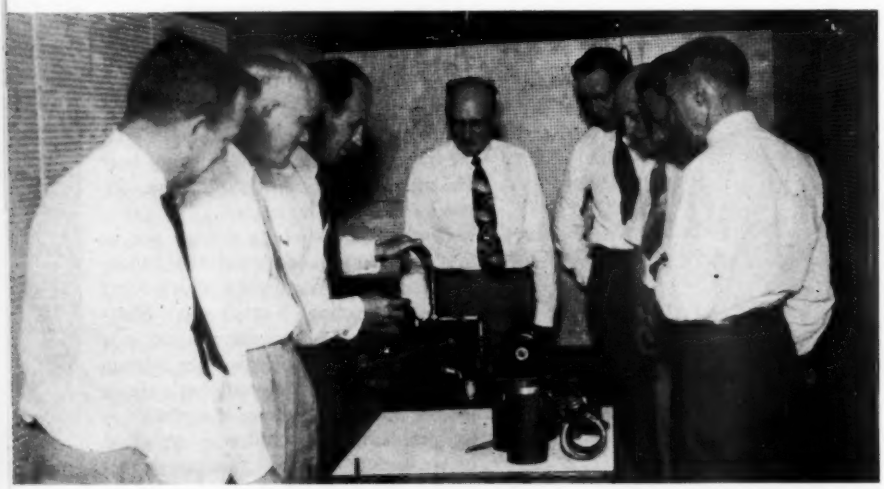
On this score, probably very few people would argue against the thesis: "Advances in combustion engineering have been largely mechanical."

[1] Professor of Physics, University of Toledo, Consultant to Surface Combustion Corporation laboratory.

[2] Development Engineer, Surface Combustion Corporation laboratory.

[3] See W. Jost, "Explosion and Combustion Processes in Gases," McGraw Hill Company.

Of course, this does not mean that there has been no attempt to understand the theory. As a matter of fact, so much has been written and done in the field of combustion that the investigator is completely overwhelmed. There has been a large amount of work done to try to bring combustion phenomena to a simple understandable theory. Unfortunately, the processes which occur are not that simple, and at best it is difficult to correlate all of the work done by the great mass of investigators. Even today com-



Dr. Turin, University of Toledo, demonstrating experimental detonation heat generator to members of the Committee on Industrial and Commercial Gas Research. In this gas "burner" extremely high heat releases are obtained by means of a series of explosions instead of ordinary flame propagation

bustion engineering is a cut-and-try proposition.

In approaching the problem of releasing extremely large quantities of energy per unit of volume, ordinary combustion processes appear to be limited by the rate of propagation of the flame. This rate is called the normal flame propagation velocity. This velocity varies with different combustible mixtures but, for a given mixture, can be varied only over narrow limits under any circumstances.

The normal flame propagation velocity is high for some mixtures and low for others, but generally speaking the velocity has a value of one—ten feet per second. This value appears to be determined primarily by the reaction kinetics, heat diffusion, and the diffusion of active particles through the mixture. It is the normal thing to design the nozzle of an ordinary combustion type burner so that the issuing velocity of the mixture is approximately that of the normal flame propagation velocity.

Practical methods of varying the normal flame propagation velocity generally come under the headings of: (1) adding turbulence to the stream, (2) maintaining ignition to prevent blowing off of the flame, (3) preheating the mixture of gases, (4) providing catalysis in the combustion chamber, and (5) increasing the pressure of the mixture.

When all factors have been adjusted to attain the maximum flame propagation velocity, the maximum heat release that can be accomplished under the circumstances is attained. This velocity then is the key to the maximum energy release. The combustion engineer, therefore, accepts the value for the normal flame propagation velocity as a fundamental limitation of energy release. He has recognized the practical factors which alter this velocity and the extent to which they are altered. Why the flame propagation velocity cannot be varied over wider ranges has never been understood completely.

One of the purposes of the present investigation is to attempt to learn what natural factors are really responsible for the normally recognized combustion velocities and to discover whether there is any way of practically altering these factors so as to bring the flame propagation velocity of the mixture to any desired value within the realm of industrial usage.

The problem was attacked first by making a careful and intensive literature survey of the work which has been carried out in the field. As has been indicated, to attempt a complete survey of the real meaning of all the work already done, would be an almost endless task. Certain aspects of the theory are more or less clearly established and insofar as the primary mechanism of combustion is concerned the state of the theory at present has evolved from the following considerations.

Combustion is primarily a chemical reaction and, of course, follows the ordinary chemical laws in regard to the end results obtained. Difficulty arises in trying to understand the kinetics of the reaction and the mode by which the phenomenon is perpetuated.

Application of the ordinary mass action laws reveals immediately that the velocities attained in combustion reactions cannot be explained without postulating the existence of many intermediate extremely short-lived compounds formed during the course of the reaction. In the course of these considerations it is difficult to take into account the great temperature changes which take place and to evaluate accurately the effects of heat conducted, radiated, and diffused away from reactants.

To get an order of magnitude correlation between theoretical predictions and experimental results, it is necessary to specify that the course of a combustion reaction proceeds to its end point via a given "chain" of components.

Here the theory must take into account a complicated combination of chain continuing, chain branching, and chain breaking reactions. These chains are believed to be initiated and perpetuated by "active particles" (atoms and free radicals). Chain branching predominates in very rapid high temperature combustion —e.g., each time an active particle takes part in a reaction two or more new particles are formed, thereby multiplying the reaction rate by continually initiating an increasing number of new reaction chains. Since such reactions are so extremely rapid, their course cannot be followed. Consequently, an investigator can only study the problem somewhat indirectly by observing flame propagation velocities. This immediately brings in the complication of the rate of diffusion of the active particles and of heat from the flame front into the unburned mixture.

Whatever the actual specific details, the basic physical mechanism must be a "collision" phenomenon, that is, that the reaction occurs when molecules collide with sufficient force. There are, of course, a great number of collisions oc-

curring each second, but only a small fraction of them are sufficiently violent under ordinary conditions to produce a reaction. Basically then, one can expect to increase the combustion velocity by arranging for more collisions per second, making the collisions more forceful on the average, or by decreasing the necessary collision violence required for reaction. The first two conditions above may be arranged by causing turbulence, increasing the pressure, preheating, etc., while the last condition possibly may be obtained by ionization.

Following this idea, ionization might appear a profitable way to increase the flame velocity. Calculation indicates that the amount of electrical energy which must be put into a mixture to realize any appreciable change is very large. Furthermore, the same *(Continued on page 42)*

Commercial gas breakfast

DON NICHOLS, publisher of *Hotel Management,* will be the speaker at the first Commercial Gas Breakfast on Tuesday morning, November 9, 1948 in the Small Ballroom of the Hotel Roosevelt, New York, at 8:30 A.M. The Association's Food Service Equipment Committee in sponsoring this breakfast which it is hoped will become an annual feature of the Industrial and Commercial Gas Section during Hotel Show Week.

Editors of publications in the volume food service field, prominent hotel men, and equipment dealers will be guests of commercial gas men and representatives of gas equipment manufacturers, who in turn will be exhibiting in the large A.G.A. Combined Commercial Cooking Exhibit at the National Hotel Exposition in Grand Central Palace, New York, the week of November 8.

Industrial gas breakfast

ONCE again the traditional Industrial Gas Breakfast will be held on Wednesday morning during Metal Show Week in Philadelphia, Pa., October 25-29. Speaker at this eleventh annual affair will be Oliver Johnson, director of market research, *The Iron Age,* who will have an important message for the breakfast guests, particularly editors of metals publications, manufacturers of industrial gas equipment, and industrial gas men.

So popular has the Industrial Gas Breakfast become that tickets should be purchased early at the American Gas Association Lounge in the Combined Industrial Gas Exhibit at the Metal Show. The breakfast will be held in the Junior Ballroom, Ritz Carlton Hotel, with food served promptly at 8:30 A.M. Last year the breakfast was a sell-out.

While in Philadelphia, visitors are encouraged to visit the Metal Show in Convention Hall and particularly the A.G.A. exhibit.

Wenzel restaurant program initiated

THE auditorium of the Boston Consolidated Gas Company was the scene during the week of September 13-17 of the initial presentation of the Wenzel Restaurant Operation Program, sponsored by the gas company and the Massachusetts Restaurant Association.

The five sessions were attended by 160 individuals who registered for the course which is designed for hotel, restaurant, and institutional feeding operators. The enthusiastic reception of the course at this first presentation is considered an encouraging sign for subsequent bookings during the remainder of 1948 and 1949. Many gas companies and several restaurant associations from the Atlantic to the Pacific have already booked this popular and instructive program. However, there are still a few open dates for companies to avail themselves of Mr. Wenzel's talents and comprehensive program for their commercial customers.

The Boston Consolidated Gas Company recently reestablished their commercial cooking equipment showroom. Mr. Wenzel took the opportunity to call the showroom to the attention of those attending the sessions, and tours of inspection were conducted to show off the latest in heavy duty gas applications.

By having a full week for the program, one session was devoted to a lecture for employees of hotels and restaurants. This rounded out the course and gave full coverage to all phases of large volume feeding operations.

Gas companies wishing to avail themselves of the few open dates to sponsor the Wenzel Program should communicate with John J. Bourke, director, Commercial Gas Cooking Promotion, American Gas Association, 420 Lexington Ave., New York 17, N. Y.

Oklahoma features new freedom

Looking into Oklahoma Natural Gas Company's south display window, passers-by see the "Jewel Box" New Freedom Gas Kitchen with Town and Country gas range, twin gas refrigerator, garbage disposal unit, and automatic dishwasher supplied from a built-in automatic water heater

New Freedom Gas Kitchens and home service facilities installed

Mildred R. Clark

The latest in New Freedom Gas Kitchens and home service facilities, together with an elaborate display of gas appliances in an ultra modern display lobby, all are features of Oklahoma Natural Gas Company's new building in Oklahoma City. The recent formal opening of the new building followed a remodeling program which took over a year to complete.

Combining beauty and grace with functional design, the new office structure has been acclaimed one of the show places of the Southwest. The entire office is air conditioned. Cooling is accomplished through the same gas boiler which provides winter heating.

The accompanying photographs indicate the flexibility of the new lobby for displaying all types of modern gas appliances, as well as complete New Freedom Gas Kitchens. For the grand opening, three New Freedom Gas Kitchens were featured—the "Jewel Box Kitchen" designed for the larger, more elaborate home; the "Chintz Kitchen" for the moderate home, and the "Fruit Basket Kitchen," commonly referred to as the "G. I. Kitchen," for the smaller home or apartment.

The "Jewel Box Kitchen" is complete with individually lighted cabinets, Town and Country gas range, twin gas refrigerator, automatic dishwasher, special cabinet features and dining nook. The "Chintz Kitchen" is complete with all three working centers for cooking as well as a utility laundry and a built-in desk to be used as a planning and sewing center. The "Fruit Basket Kitchen" is designed along highly efficient, compact lines with breakfast bar and dining nook.

All three kitchens are combination floor and window display.

Included in the display lobby, as a service to customers, is a section devoted to kitchen planning attended by a member of the home service department.

All around the lobby, attractively arranged, are mobile displays of gas ranges built to "CP" standards, automatic water heaters, house heating equipment, gas refrigerators, and an all-year gas air conditioner. Lining the corridor to the "Culina Room" is a commercial cooking display of stainless steel equipment.

The "Culina Room" is the home service club room. "Culina" (pronounced Ku-lée-na) is the Latin word for "kitchen." This air conditioned meeting room will seat 150 for demonstrations and is also designed for club meetings, social gatherings and parties. Facilities include chairs, bridge tables, china, silver, buffet table and kitchen facilities for the preparation of food. On the stage is the modern bamboo and ivy-decorated demonstration kitchen equipped with the newest in kitchen cabinetry and latest gas appliances, hydraulic dishwasher, and laundry dryer.

The room itself is done in muted shades of rose with yellow leather covered chairs, tables and other accessories. The "Culina Room" adjoins the home service office which is a long room sided with plenty of storage space, filing accommodations and book shelves. Off the office and the "Culina Room" are two fully-equipped testing kitchens efficiently arranged to allow several people to work without confusion.

The day before the public opening, the company held an exclusive preview for 35 newspaper and radio men which included a luncheon in the "Culina Room" and a tour through the entire offices. That evening another special open house was held for 200 gas appliance dealers, contractors, builders and other allied businessmen. Open house for the public was held on the following two evenings when several thousand guests visited the display and home service facilities and toured the entire building.

For all these showings the home service department, headed by its supervisor, Mildred R. Clark, held a carnival with cakes of various holiday colors and designs.

A kitchen where recipes are prepared and tested before release to the public

The comfortable and modern "Culina Room" provides an ideal setting for cookery demonstrations, club and social gatherings and parties of up to 150 persons

On the left is the "Fruit Basket Kitchen" containing a breakfast bar and circular dining nook

New ultra modern display lobby with gas appliances set on mobile display units of various colors

Higher gas production from coke oven plants

BY WALTER C. WARDNER

Superintendent,
The Connecticut Coke Co.,
New Haven, Conn.

W. C. Wardner

Assuming no coal gas is used for underfiring, one fact which seems clear is that the coke oven plant does not lend itself readily to operation that meets peak load gas requirements. Any effort to do so affects coke quantity and quality, coal tar chemical production, and the normal life of the oven battery which is the backbone of any coke plant. As the name implies, the main product is coke, and its whole operation differs from a plant whose main product is gas. Coals or coal mixtures having the highest gas yield generally make a friable and spongy product, less suitable for the blast furnace, foundry or domestic market.

The means available for increasing gas production from coke oven plants may be divided into two general classifications; first, operating at maximum efficiency within the limits of basic coke plant facilities, and secondly varying operation by alterations to fundamental coke plant practice.

In controlling basic coke plant operation two possibilities exist—either adjustment of operating schedules or increased efficiency of current operation. However, varying the rates of operation offers no solution when the plant is already being operated at maximum capacity consistent with other controlling factors including safety and long oven life. Varying the light oil plant operation is possible and often is done to increase gas production. This however is purely a question of economics and it must be decided whether or not these constituents are worth more in the liquid or vapor phase.

Another possibility lies in modifying the coal mixture. This mixture for any plant is usually so selected that the coke produced is of the highest quality possible, consistent with the gas load to be maintained, or other limiting factors. Any variation in the proportion of the coals in the mixture for the purpose of increasing gas send-out will usually result in inferior coke. However, the varying of coal mixtures is a method practiced by some plants to increase gas makes.

The amount by which low-volatile coal can be replaced by high- or medium-volatile coals depends of course on the coke market. Since coke structure is more affected by the first ten percent addition of low-volatile coal, replacement of all but ten percent will probably still yield a salable coke. Lowering the percentage of low volatile coal will also allow the coal mix to be pulverized less thoroughly, thus permitting a heavier oven charge. Some plants making water gas coke have resorted to the charging of straight high-volatile coal unpulverized.

Increasing the efficiency of current operation requires nothing except a close control over normal operating procedure. First, keeping the raw material, coal, as dry as possible during storage by the manner in which it is piled, aids in maintaining constant throughput. Moisture on coal not only affects bulk density adversely, but the water on the coal which is weighed by the larry scale produces none of the results we are after, unless it is to remove excessive wall carbon.

Next, the amount of coal remaining in the oven after a charge may be a factor. Having decided the weight of coal per oven most desirable for a given operating rate, the maintenance or lack of maintenance of those weights will result in a wide variation in yields of gas as well as of other products. Bulk density control results in a more uniform charge to the ovens with resultant uniformity of operation and constant throughput. This is so simple that it hardly seems worthwhile mentioning except that it is so important. Because of the repetitive nature of oven operation the actual routine may be taken for granted. It is easy enough for supervisors to detect too much coal being charged by noting the time required to level, but after a downward adjustment has been made, and conditions have returned to normal so far as the coal is concerned, it may be some time before this is detected. In the meantime, much throughput capacity has been lost.

Varying operations by alterations to fundamental coke plant practice offers a wide range of possibilities. Certain additive materials such as oil may be applied to the coal with good results, but this has limitations. So-called residuum oils often used for this purpose require more B.t.u. per pound to carbonize than does the coal with which it is mixed. This means that if you are already operating at maximum capacity within the recognized limits of safety so far as heat input and transfer is concerned, continued use can only result in cool coke, providing of course the same rate of operation is maintained.

Wide variance

Oils, because of their source and method of refining, vary widely in their characteristics. It is often necessary to try different oils until one is found which will give the desired results under the operating conditions of the plant. The time of contact will vary with the carbonizing rate and whether there are one or two standpipes per oven to take away the volatile products. After these problems have been considered it is then desirable, if not necessary, to establish a control procedure sufficiently simple to be operated with existing personnel.[1]

Oil has also been cracked successfully in empty ovens and while it may not be

Paper presented at A. G. A. Joint Production and Chemical Committee Conference at Asbury Park, N. J., May 24-26, 1948.

[1] "Carbonization of Coal-Oil Mixtures." G. V. McGurl and C. J. Ramsburg, A.G.A. paper, 1940.

practical to convert serviceable ovens to this method, ovens that are no longer suitable for pushing coke might well be utilized for this practice.

Other solid products high in volatile matter, such as cannel coal, which are not normally used because of their cost or lack of availability have been tried. Their use must be determined by the above factors after it has been decided by trial whether or not their effect on coke quality is sufficiently negligible.

Liquified petroleum products, water and natural gas offer a wide latitude of operating limits. Much has been written on these subjects and it is not necessary to do more than mention them here.[2]

Through the cooperation of many companies that were contacted, considerable information has been collected concerning the various methods for increasing gas production which are in use throughout this country, Canada, and England. Brief summaries of each of these methods have been incorporated in this paper. Attached will be found also a tabular summary showing the frequency of the use of these methods at a number of plants.

Varying coal throughput: Although most plants maintain a constant tonnage throughput or a constant number of ovens pushed, some increase throughput when more gas is required. This is accomplished by reducing the coking time and increased gas send-outs of ten percent are reported. This method, while satisfactory so far as gas is concerned, also increases the amount of coke and other products in proportion, the disposal of which must be considered. Changes which would affect an increase would naturally require corresponding additional heat input and increased temperatures. While these may both be within the range of practical and safe operation they do not lend themselves readily to rapid changes since the inertia of such a large mass of heated brickwork is tremendous.

Varying light oil plant operation: Increased gas demands and peak load demands are often met by variations in light oil recovery rates or by shutting down recovery plants except for the removal of naphthalene and gum formers. The return of 250 gallons of motor fuel per hour was used at one plant to meet peak loads. Discontinuance of light oil recovery adds four-five percent to gas send-out. This method is really simple and the results are quickly realized.

When benzol or other lighter fractions are returned to the gas extreme care should be exercised not to exceed the amounts which the gas stream is capable of maintaining in a vapor phase.[3] If the light oil plant is shut down, care should be exercised to insure complete drainage to prevent possible freeze-up which would impede the return to operation. In addition much of the insulation which satisfactorily withstands weathering when in operation may become soggy and disintegrate when reduced to ambient temperatures. This of course would apply only to equipment installed out of doors.

Other processes

Adding oil to coal: Increased gas demand has been met at many plants by carbonizing coal and oil mixtures. Bunker "C" oils are used up to five gallons per ton with a resultant increase in the gas send-out of about 150 cubic feet per gallon of oil. Slightly higher increases are reported with the use of No. 5 and No. 6 fuel oil and light straw burner oil. This may be due to more complete gasification of the lighter oils, or to the effect that they have had on the bulk density of the coal.

This method seems to have a rather wide application and in addition to increasing the gas has other advantages, for example, its effect on raising the gravity of the gas, which may or may not be desirable. Small amounts of oil added to the coal mixture makes coal run more freely through chutes, bins, larry cars, etc. It also seems to reduce hang-ups due to freezing, and decreases leveling time. At the rate normally used, that is up to five gallons per ton, no undesirable effects on the oven brickwork have been noted.

Making oil gas in coke ovens: Increased gas demand was met at one coke oven plant by charging Bunker "C" oil to two unserviceable ovens.[4] The oil was sprayed at 100 pounds pressure and 150° F through sprays located in the four charging lids. Steam was sprayed through the lids and through the coke side door. A thermocouple was inserted through the pusher side door.

As the oven went on the line, the steam sprays were turned on, then oil was charged through all sprays until the temperature dropped to 1400° F. The oil was then cut to maintain this temperature. The steam aided in cracking the oil, prevented excessive wall and floor carbon, and gasified the fines in the petroleum coke. After a 21-hour run the oil was shut off and the steam left on for an hour to facilitate cleaning the oven and for the additional gas made.

When the gas made was diluted with producer gas, an equivalent of 200 cubic feet of 525 B.t.u. gas was made per gallon of oil charged. The ovens were kept connected directly to the collecting main and the tar formed did not contaminate the coal tar.

Bulk density control: The use of small amounts of oil on the coal to control the bulk density or to maintain maximum bulk density is widespread. Various types of oil are used, and a wide range of bulk density is apparently desired. Laboratory weights from 46-50 pounds per cubic foot are reported to be maintained at varying moisture content by the use of 0.05 percent to 0.3 percent of petroleum wash oils. Laboratory weights without the use of this oil would be at times as low as 42-43 pounds per cubic foot. No. 5 fuel oil has been used to maintain consistently full weight charges where otherwise fluctuations of four percent were noted. Increases from an average of three percent to a maximum of eight percent in gas and coke production are obtained.

Indications are that oils as heavy as Bunker "C" do not affect the bulk density so materially, and any increase during periods of low atmospheric temperatures and high moistures is questioned. One plant reports that it maintains laboratory weights of 43-44 pounds per cubic foot by the use of 2-2.5 gallons of Bunker "C" oil per ton of coal.

Most plants use a steady rate of oil and report a fairly uniform bulk density, but others vary the oil to maintain desired cubic foot weights by taking snap samples. When the hammer-mill is located after the mixer bins, a close check can be kept on the density of the coal mixture, but a considerable lag is encountered when some of the mixer bins are filled with pulverized coal before a check on the density of the mixture can be made.

Pulverization *(Continued on page 36)*

[2] Talk by R. E. Kruger at the New England Gas Association Conference in Boston, March 18, 1948.
[3] "Selective Scrubbing." Dr. A. R. Powell, A.G.A. paper.
[4] "Testing Manufacture of Oil Gas." Robert R. Grant, A.G.A. MONTHLY, December, 1947.

Industry news

A.G.A. southwest personnel group elects

V. H. LUNEBORG, personnel manager, Arkansas Natural Gas Corp., Shreveport, La., was elected chairman of the American Gas Association Southwest Personnel Conference at a meeting in New Orleans on September 10. Curtis M. Smith, personnel manager, Tennessee Gas Transmission Co., was elected vice-chairman, and Vernon E. Rasch, employment manager, United Gas Pipe Line Co., was named secretary of the conference.

The nominating committee appointed to offer names of candidates to hold office in 1949 was comprised of Hudson Carmouche, general superintendent, Houston Pipe Line Co.; M. V. Cousins, director of personnel, United Gas Pipe Line Co., Shreveport, La., and W. H. Senyard, director of personnel, Louisiana Power & Light Co., New Orleans.

The meeting was well attended by executives from the Southwest, and several topics of particular interest to top management were discussed. An expert analysis on the recent Supreme Court decision on granting overtime on overtime was presented, followed by an open forum on the decision and its effect on present policies within the gas industry. Bonus payments as they affect base pay and overtime were discussed, as were recent wage adjustments and military leave policies.

Affiliation of the A. G. A. Southwest group with the Southern Gas Association was offered for consideration of the members but no decision was reached. A committee composed of M. V. Cousins, Hudson Carmouche, W. H. Senyard, W. G. Wiegel and V. H. Luneborg, comprising three past-chairmen, the present chairman and the newly elected chairman of the conference, was appointed to review the matter and to report at a future meeting of the conference.

V. H. Luneborg

The chairman advised that the third Annual Personnel Conference of the American Gas Association will be held at the Palmer House in Chicago on November 18 and 19. He informed members that the recently organized Great Lakes Personnel Conference this year is joining the Southwest and Midwest groups as well as the Personnel Committee of the A. G. A in sponsoring this two-day meeting. Mr. Wiegel also expressed the appreciation of the conference to E. M. Spurlock, district and safety supervisor, New Orleans district, United Gas Pipe Line Co., for his efforts in arranging the New Orleans meeting.

Muncie Gear develops gas heat pump

ANNOUNCEMENT of a gas-fired heat pump which takes heat from the earth in winter and puts it in the house, and takes heat from the house and puts it in the ground in summer, has been made by Muncie Gear Works, Muncie, Indiana.

Labeled the Gas Marvair, the new plant is designed to operate on either natural gas, manufactured gas or LP-gas, thus providing flexible usage regardless of location.

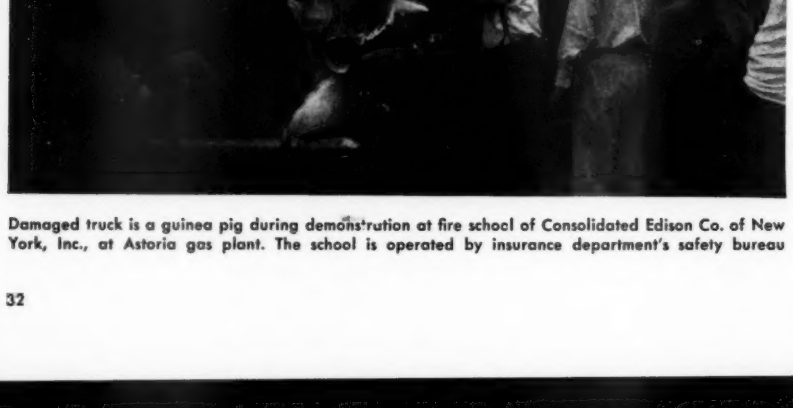
According to Marvin Smith, company vice-president, the unit has all the safety of a conventional gas furnace. It is also absolutely automatic and offers both heating and cooling as conditions require.

The new plant uses a modern, quiet gas engine as the source of mechanical energy driving its compressor. By combining the heat from the earth with heat recovered from exhaust gases and water jackets, a high overall performance is obtained. Through use of modern accoustical techniques the noise level of the engine is reduced below that of the ordinary circulating fan or oil burner.

Heating is furnished by the gas unit, Mr. Smith said, at a cost of less than 50 percent that of the conventional gas heat. Because gas is a moderately priced form of basic energy, it can also furnish cooling at a considerable saving in most areas over that of a conventional cooling unit. It affords to gas companies, he said, a means of reducing peak requirements on heating and provides a summer load.

The four basic components are: the energy source; the refrigeration system, or means whereby the earth heat is delivered to the air distribution system in the winter, or taken from the air distribution system and delivered to the earth system in summer; the heat source which takes heat from the earth in winter and delivers heat to the earth in summer, and the air distribution system which delivers the heat or cool air from the gas unit to the place it is required.

New York gas men study fires



Damaged truck is a guinea pig during demonstration at fire school of Consolidated Edison Co. of New York, Inc., at Astoria gas plant. The school is operated by insurance department's safety bureau

Amended Constitution now available

COPIES of the American Gas Association Constitution including amendments effective July 1, 1948 are now available on request from headquarters. These amendments have the effect of changing the Association's accounting year from the year ending September 30 to the calendar year.

Proper usage called vital to natural gas

NATURAL GAS is a fuel designed for superior and exacting uses and should not be employed to displace coal in heating jobs that coal can do equally as well, Gardiner

Symonds, president, Tennessee Gas Transmission Co., Houston Texas, stated in a speech before the eighth annual Appalachian Gas Measurement Short Course in Morgantown, W. Va., on August 30.

Mr. Symonds said that in order to improve the load factor on its lines his company has asked permission to extend its pipelines into New York State and New England where gas is desperately needed for specialized purposes.

The fuel industry must supply each type of fuel to the best advantage of all the people, he declared. If one important section of the country does not prosper fully it is not long before this is felt in the pocketbooks of other areas.

"We must stretch the life of our resources over the longest possible period, both by elimination of waste and by proper usage."

Mr. Symonds, whose company is a principal supplier of Southwestern Gas to augment the output of Appalachian fields, said the capacity of his system has more than doubled since 1944 and soon will be three times that of the original line.

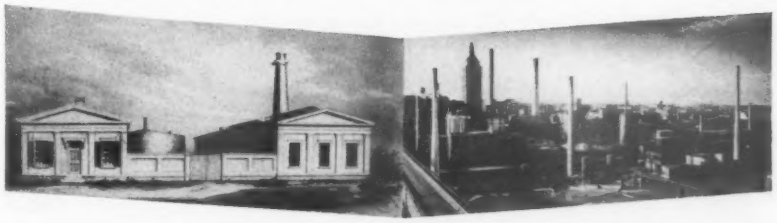
Titanium in production

SMALL-SCALE manufacture of titanium metal, a new basic raw material for industrial development, has been started by E. I. du Pont de Nemours and Co., Inc., at Newport, Delaware. The U. S. Bureau of Mines has been producing the metal for research purposes, but this is probably the first time ductile titanium metal has been produced for commercial exploration.

The silver-white metal is light and strong. It is highly resistant to corrosion and has a higher melting point than the commonly used metals. It is comparable to stainless steel in strength and corrosion resistance, but weighs only a little more than half as much per unit of volume. It is less than twice as heavy as aluminum, but several times as strong, in bars of comparable dimensions.

Industrial and university laboratories can obtain small samples for testing from the company without charge.

Rochester company marks anniversary



(Left) First Rochester gas plant built in 1848, and (right center) company's West Gas Station today

Centennial show staged by employees sometime in late autumn will fete century of community service

THE one-hundreth anniversary of Rochester Gas and Electric Co., Rochester, N. Y., will be signalized in the late autumn by a centennial show staged by employees which will dramatize historic events of the first century of community service.

Rochester Gas Light Company was incorporated on May 18, 1848. Organized by private enterprise and financed by local capital in the best American tradition, the company is the lineal forefather of the present Rochester Gas & Electric Company. The years brought changes in corporate names and consolidations but the genealogical thread runs straight and true back to the pioneer gas company of 1848.

Although the first gas company was incorporated in May 1848, the city did not see its first gas lights until December 12 of that year when they were turned on in a residence on Franklin Street, on the site of the present Sibley Tower Building. A crowd in the street outside cheered "and the lights burned bright and true" according to an old newspaper account. That same evening three gas street lamps were turned on.

The first company had a capital of $150,000, and the first president was Lewis Brooks, with Levi A. Ward as secretary. One of the stockholders was Nathaniel Rochester, son of the man who gave the city its name. It is a far cry from that little plant serving a few hundred customers to the present company with $102 million invested in plants, property and equipment, and serving 160,000 customers in eight counties, two cities, and 165 villages and hamlets.

In 1880 leading citizens organized the Rochester Electric Light Co., and in 1892 the Brush Electric Co., Rochester Electric Light Company and the Edison Illuminating Company were consolidated into a single corporation named the Rochester Gas and Electric Company.

Then in June 1904 this company was merged with the Rochester Light and Power Company to become the Rochester Railway and Light Company. In 1909 the railway properties were transferred to the New York State Railways but Rochester Railway and Light continued under its old name until 1919 when it was changed to Rochester Gas and Electric Corporation. The main office building at 89 East Avenue was constructed in 1926, previous to which the company offices were located on Clinton Avenue North.

Alexander M. Beebee is president of Rochester Gas and Electric with Herman Russell as chairman of the board.

Two companies mark golden jubilees

THE East Ohio Gas Company and Hope Natural Gas Co., Clarksburg, W. Va., have each marked 50 years of service to gas consumers in their respective territories.

In honor of the occasion, the Ohio company published a special golden jubilee issue of *The East Ohio News*, features of which were a nine-page history of the company, an album of presidents, chats with several annuitants, the company calendar, and a broad selection of pictures. J French Robinson is president of the company.

Hope Natural Gas Company's anniversary issue of *The Beacon* was devoted to pictures of past and present operations and an unusually readable story of the company's growth. L. L. Tonkin is president, Hope Natural Gas Company.

Houston gas appliance sales rise

GAS appliance sales by cooperating dealers of Houston Natural Gas Corp., Houston, Texas, climbed to an all-time peak during the company's fiscal year ending July 1, 1948, easily surpassing the existing record set in 1941.

Helping to pave the way for stimulated appliance sales was the addition of thousands of new customers to the company's system during the fiscal year. The greatest numerical gain in appliance sales was reflected in the installation of 4,556 gas ranges, 1,805 more than last year.

The growing popularity of automatic and central heating units is revealed in an 81.4 percent increase over the previous fiscal year. An increase in gas water heater sales from 2,552 in 1947 to 3,541 in 1948, and an estimated total sale of 7,000 space heaters rounded out the picture of active dealer performance.

Columbia place-mats promote gas

GAS the wonder flame
1. Undoubtedly, the most significant change in gas ranges occurred in 1915 when the first oven heat control was invented—forever removing guesswork and oven watching. Time and temperature cooking was the result.
1. For centuries man was awed by mysterious vapors that emanated from deep openings in the earth's surface. That he built temples and worshipped at some of these places we know from legends, such as are told of the Oracle of Delphi. There a priestess sat on a golden tripod above a chasm whence issued mephitic vapors. Her pronouncements were in turn interpreted and reported to her followers. Science knows now that the mephitic vapors issued from a natural gas well.
2. A century ago in the Roaring Forties, as they were sometimes called, the first gas range was built in the United States. The burners consisted of an iron ring filled with sand and placed on a wire screen. Gas was fed through the screen and ignited on top of the sand. In a remarkably short space of time—by 1850—one hundred American families were using gas ranges for cooking.
4. Today, your gas range is completely automatic. Your oven and top burners turn themselves on and off, remain at one constant heat while burning, and cook a complete oven meal for you while you are out visiting or shopping. Rigid national standards covering more than 529 tests of durability, safety and efficiency were established by the American Gas Association before this organization would give its approval to any gas range. And in 1938 specifications for a seal of Certified Performance (CP) gas ranges were announced. There are 22 such specifications over and above the normal tests for approval. When you see the CP Seal on a gas range, it means the latest and best features for speed, convenience, flexibility, efficiency, and A FULLY AUTOMATIC RANGE!
5. Hunger, the most primitive instinct of man, is usually the cause of a baby's first cry. Food is the foremost necessity of life; second in importance is its preparation. It took thousands of years of need and knowledge for the Automatic Gas Range to be developed: the best answer to the second most important requirement of mankind!
70,405,000 Families cook with Gas
11,715,000 Cook with Coal Wood
6,216,000 Cook with Oil
3,754,000 Cook with Electricity
6. That Gas is the ideal cooking fuel is proved by the fact that over twenty million families use Gas for cooking. More people cook with gas in the United States than with all other fuels combined.
7. And just as the gas range is Fully Automatic, so are the gas refrigerator and water heater. For complete automatic convenience in one of the basic units of the American Home, the New Freedom Gas Kitchen stands uncancelled!
new freedom GAS kitchen
HOME SERVICE DEPARTMENT
YOUR GAS COMPANY

This home service place-mat prepared by The Manufacturers Light and Heat Co., Pittsburgh, Pa., explains in lucid terms why gas is considered the ideal fuel for cooking, describing the American Gas Association's approval testing program and also "CP" specifications for gas ranges

Automatic water heater shipments

SHIPMENTS of automatic gas water heaters during the first half of 1948 totaled 726,200 units, according to the Gas Appliance Manufacturers Association. This is 212,100 units or 22.6 percent less than the 938,300 units shipped during the same period last year when the alltime high was reached.

This year's six months' figure exceeds by 191,200 units shipments during the same period of 1946, the second highest sales year, and is almost double the first-half shipments during 1941, the prewar peak year.

On the basis of past trends, unit shipments of gas-fired automatic water heaters will approach 1,450,000 for the calendar year 1948.

Shipments of automatic water heaters for use with LP-gas during the first six months of 1948 amounted to 12.8 percent of the total shipments, or 93,000 units. While this is 57 percent less than the 215,000 LP units shipped during the same period of 1947, it is more than double the number of LP units shipped in 1946.

Shipments of electric storage water heaters during the first half of 1948 were approximately 512,000 units, compared with 548,000 shipped during the same period of 1947.

Notes from F.P.C.

● **El Paso Natural Gas Co.**, El Paso, Texas, Southern California Gas Company and Southern Counties Gas Co., Los Angeles, Calif., have been authorized to construct and operate additional facilities for the transportation and sale of natural gas. Cost of the project is estimated at $66,040,000.

The construction would increase the capacity of the gas companies' Los Angeles line from 305 million to 405 million cubic feet daily so that they can transport to their markets the additional 100 million cubic feet of natural gas daily to be received from El Paso Natural Gas Company near Blythe. The facilities will also permit the sale, for the three-year period, of 17-31 million cubic feet of natural gas a day to West Texas Gas Co., Lubbock, Texas. The companies expect to complete construction so that deliveries can be started not later than October 1951.

● **Natural Gas Facilities** designed to add over 800 million cubic feet of daily delivery capacity to individual natural gas systems in the United States and involving more than 3,500 miles of new pipeline were authorized by the F.P.C. during the six months between January 1 and June 30, 1948.

● **New York State Natural Gas Corp.**, Pittsburgh, Pa., has been authorized to operate and construct natural gas pipeline facilities in Pennsylvania at an estimated cost of $3,208,727.

Radio depicts industry's farsightedness

A DRAMATIC story illustrating the fight to preserve California gas pipeline networks during heavy floods was featured on the "California Caravans" radio show on Sunday afternoon, September 5.

Sponsored by the California Medical Association, the program has a Hooper rating between four and five million. Throughout the half-hour show on September 5 references were made to the Texas-California biggest inch gas pipeline. The program was arranged in cooperation with a special representative of the American Gas Association in Los Angeles, and was designed to acquaint the public with the gas industry's farsightedness in helping to insure the growth of Southern California.

Connecticut L&P scholarships awarded

TWO Connecticut Light and Power Company scholarships have been awarded students in the University of Connecticut's College of Agriculture.

The scholarships, each of which provides $300 annually for four-year courses in the College of Agriculture, were established by the company in 1946 to contribute to the development of a constantly improving Connecticut agriculture. Five men and one woman have been awarded scholarships thus far. In 1949 and thereafter, eight Connecticut Light and Power Company scholarship students will be enrolled at the university at an annual cost to the company of $2,400.

Review of fatal injuries published

ADDITIONAL copies of the newly published booklet "Review of Fatal Injuries in the Gas Utility Industry During 1947" are now available to interested persons without charge.

The publication was prepared for the Association's Accident Prevention Committee, W. F. Brown, Consolidated Edison Co. of New York, Inc., chairman, from reports which the gas industry has made available to the A. G. A. Bureau of Statistics.

Publication of the bulletin "Accident Experience of the Gas Industry in 1947" is expected in the near future.

Texas gas begins storage reservoir

TEXAS Gas Transmission Corp., Owensboro, Ky., has started construction of a natural gas storage for the City of Memphis. The storage facilities will consist of 63 miles of 26-inch pipeline extending from Lula, Miss., to Memphis, with a capacity of 67 million cubic feet of gas.

At its northern end the pipeline will tie into the City of Memphis gas distribution system so that gas may be delivered from storage during peak cold weather periods this winter. The line will also be an integral part of the 840-mile, 26-inch pipeline from Texas to Ohio for which the company has already requested approval.

Lone Star starts work on new line

LONE STAR GAS CO., Dallas, Texas, has started construction of a $3,500,000 70-mile pipeline designed to increase the gas supply in the Dallas-Fort Worth area as well as in other towns and cities on the company system.

D. A. Hulcy, company president, announced that the 20-inch line will run from Opelika in Henderson County, Texas, to a point near Reinhart in Dallas County between Garland and Dallas where it will connect with the company's transmission system.

The new line will have a delivery capacity of 180 million cubic feet of gas every 24 hours and is expected to be finished before extremely cold weather arrives.

Junior Miss

(Continued from page 22)

ular attention from the girls.

Connie Complexion tells of her party pick-up facial and outlines it step-by-step on our last chart, "Don't Let It Get Under Your Skin." These charts are assembled so that they can be set up in tent fashion on a single table or desk.

The take-home sheet, "So You're in Hot Water!" was developed to dramatize still further the material presented in the talk. It contains information which we feel the girls will want for reference, that their parents will want to read, and that our company wishes to emphasize.

On the back of the sheet is our pin-up recipe, "Trixies Date Bait." This recipe for luscious cookies gives the girls one more reason for keeping the folder. And, as home economists, of course we can't resist reminding them that glamour may be the way to catch a man's eye, but the way to his heart is through his stomach.

The enthusiasm with which this talk has been received is evidenced by the number of requests we have received for it. From September 1947, when we first offered the talk, until June 1948, 177 presentations have been made in our districts with a total of 6,276 contacts. The majority of these have been given in schools, although the talk has proved its worth with Girl Scouts, Y.W.C.A. groups, and other organizations.

If we can get the Junior Miss in hot water by appealing to her with the glamorous side of hot water service, it is our hope that she may become critical of makeshift water-heating equipment and realize that an abundant supply of hot water is an important step toward better living and better homemaking. Perhaps she will convince her parents, and she herself may be a prospect for a water heater in her own home in a few short years.

Rochester sponsors essay contest

FRESH evidence that young people of today know the kind of America they want and believe in was supplied recently by a series of remarkably fine essays submitted in a contest sponsored by Rochester Gas and Electric Corp., Rochester, N. Y., among 26 high schools in the area.

Members of the senior classes were invited to write an essay on the subject "What America Means to Me," and hundreds were turned in. The faculty of each school selected the best from that school and the writer of each of these essays received a ten dollar check from the utility. The 26 winning essays then were entered in a second contest to decide the "winner among the winners." Three judges—the editor of a local newspaper, the county commander of the American Legion, and the president of the Rochester Chapter of Gold Star Mothers, made the decisions and awarded a first prize of $25, a second prize of $15, and a third prize of $10.

Higher Gas Production

(Continued from page 31)

is varied at some plants for its effect on the bulk density of the coal. At one plant where high-volatile coal is charged, a higher bulk density is obtained by mixing pulverized and unpulverized coal. It has been shown[5] that by selective pulverization, the bulk density of a coal mixture could be increased 6.5 percent over an unvaried pulverization.

Underfiring with oven gas mixtures or substitutes: In an effort to augment their gas send-outs, some coke oven plants have experimented with the use of oven gas mixtures and substitutes for the cool gas underfiring of their batteries, thereby making available an increased amount of oven gas. The percent increase in gas send-out depends of course on the type of mixture used.

Following are some of the fuel gases used as substitutes for straight oven gas: blast furnace gas enriched to 350 B.t.u. with oven gas; producer gas enriched to 850 B.t.u. with either butane or the lower boiling constituents of natural gasoline; 75 percent 520 B.t.u. oven gas mixed with 25 percent 750 B.t.u. propane air; producer gas enriched to 550 B.t.u. by the addition of natural gas;[6] natural gas diluted to 500 B.t.u. with air; mixed 530 carbureted water gas with oven gas; 1200 B.t.u. oil gas diluted to 530 with 90 B.t.u. blast furnace gas. Anyone interested in these combinations is referred to A. G. A. subject papers.

High B.t.u. gas dilution: A combination of natural gas and producer gas is used at one plant to increase the coke oven plant send-out. By dilution of oven gas with producer gas to 380 B.t.u., then re-enrichment with natural gas to 537 B.t.u., an increase in send-out of approximately 90 percent is realized. This method has been practiced satisfactorily through the past two winters. In addition to allowing an increased send-out of a high order, it is infinitely flexible in any range up to the maximum.[2]

Variations in water gas operation: Coke oven plants equipped with auxiliary water gas sets have stepped up their total gas send-out by modifying the water gas operation. In some instances the oil used in the carburetor is cut down and the resultant blue gas is used to substitute for producer gas as an oven gas diluent. In other cases they cut blow gases and purge run gases to a minimum and dilute 700 B.t.u. carbureted water gas to 537 with 120 B.t.u. producer gas. Wide variation in send-outs is of course possible for any coke plant which is equipped with water gas sets. The possibilities are by no means limited to those reported above, but since this constitutes a subject by itself, further description will not be attempted here.

Liquified petroleum cold enrichment: In one locality where interchangeability between coke oven gas and natural gas was required, an 870 B.t.u. mixture of propane and coke oven gas has been used with no serious difficulties. Butane re-enrichment is used by another plant after excess dilution with producer gas to increase the send-out by approximately 20 percent. Butane-air and propane-air mixtures have been used up to 25 percent to increase the send-out from some plants. This again represents a simple and flexible means of varying gas production at relatively low capital expenditure, which seems to be limited mainly by the availability of the petroleum products during the seasons when they are most needed.

Use of cannel coal in ovens: Carbonization of coal mixtures containing cannel coal has been tried at an eastern plant. This operation, which was conducted for the purpose of increasing the volume of gas available for send-out, conclusively proved that cannel coal could successfully be used with no serious operating difficulty and no markedly deleterious effects. Some additional maintenance was required on the Bradford breakers due to the large size and resistance to breakage of the cannel coal. The coke produced, while of a somewhat weaker structure, was suitable for water gas use.

Decreased bulk densities were observed during these tests but could not be directly attributed to the use of cannel coal since the moistures of the other coals had risen. Increases in roof carbon trouble and tar moistures were also noticed, but again these could not be directly attributed to cannel coal since the same troubles had occurred with other coals.

The first test substituted a mixture of 15 percent cannel coal, 75 percent high-volatile coal, and ten percent low-volatile coal for the regular 85 percent high-volatile and 15 percent low-volatile mixture. This test resulted in an approximate gain of ten percent in the gas make.

The second test substituted a mixture of 20 percent cannel coal and 80 percent high-volatile coal for an 89 percent high-volatile 11 percent low-volatile mix and resulted in an increase of 12 percent in the gas yield.

Thus it can be seen that there are varied approaches to the problem of increasing gas production from coke oven plants. Summary descriptions have been presented of ten possible methods. Although it should not be inferred that these include all possible means, it is believed that they do represent the most common practice in this country. It is hoped that, to the coke plant operator faced with this problem, this above review will be helpful and may serve as a guide for further development in this connection.

It would be grossly unfair to close without acknowledgement to those plants which have reported their experiences as well as to C. R. Stenstream, J. M. Cannon, D. K. Harrison, and E. R. Devine whose patient assistance has materially aided in collecting and setting down these data.

Tabular Summary

Showing Methods Used to Increase Gas Production and Frequency at Reporting Plants

Method	Frequency
Modifying coal mixture	2
Varying coal throughput	7
Varying light oil plant operation	8
Adding oil to coal	7
Making oil gas in coke ovens	1
Bulk density control	14
Underfiring with oven gas mixtures or substitutes	6
High B.t.u. gas dilution	5
Variations in water gas operation	1
Liquified petroleum cold enrichment	6
Use of cannel coal in ovens	1
Number of plants represented in above summary	27

[5] "Method for the Mixing & Blending of Coals for Coking." John Mitchell, October 27, 1931.

[6] A.G.A. Proceedings, 1933. "Use of Producer and Natural Gas for Underfiring at Plant of Chicago By-products Coke Company." C. R. Locke.

Worry

● Worry is a thin stream of fear trickling through the mind. If encouraged, it cuts a channel into which all other thoughts are drained.

—Arthur Somers Roche

Michigan Consolidated officials elected

LAWRENCE K. RICHEY, operations manager, and Theodore W. Weigele, gas engineer, Michigan Consolidated Gas Co., Detroit, have been elected vice-presidents responsible for operations and gas engineering.

Mr. Richey graduated from Ohio State University in 1916 and joined the gas company in 1920 as a cadet engineer. He later served as assistant to the shop superintendent, assistant to the superintendent of distribution, superintendent of distribution, assistant to the general manager, and since February 1946, as manager of operations.

Mr. Weigele, currently president of the Michigan Gas Association, graduated from Stevens Institute of Technology in 1913 with the degree of mechanical engineer, and began his career as a cadet engineer with Public Service Co. of New Jersey.

He entered the employ of American Light and Traction Company in 1914 at St. Paul, Minn., where he became construction engineer. Two years later he was transferred to Binghamton Gas Co., Binghamton, N. Y., as superintendent of manufacture. Following World War I he took charge of the gas company's A Station in Detroit, and after that became assistant to the superintendent of manufacture and in 1927, experimental engineer.

In 1935 Mr. Weigele made a study of the Detroit gas market requirements and economic and engineering problems in connection with the changeover from manufactured to natural gas. In 1938 he prepared studies in connection with the use and purchase of the Austin Storage field.

As the company's gas engineer since 1944, one of his jobs has been to study available gas supplies and engineering features of the new line now under construction by Michigan-Wisconsin Pipe Line Company from Texas to Michigan.

Mr. Richey and Mr. Weigele are both members of the American Gas Association.

L. K. Richey

T. W. Weigele

Personal and otherwise

Dixon receives Rockwell appointment

L. A. DIXON has been appointed vice-president of the meter and valve divisions, Rockwell Manufacturing Co., Pittsburgh, Pennsylvania.

Mr. Dixon is well known in the utility, petroleum and municipal markets, having done considerable field work in the promotion of the company's products for the past 20 years.

He was associated with Wisconsin Axle Company and started at the Pittsburgh Equitable Meter Co., now a division of Rockwell Manufacturing Co., in 1926 as assistant to the president.

Later, he was president, Pittsburgh DuBois Co., manufacturers and distributors of gas meters. When that company was acquired by the Rockwell Manufacturing Company he continued to serve in the same capacity until recently, when he relinquished that position to accept the new assignment.

L. A. Dixon

Consolidated Edison executive changes

LOUIS A. SCOFIELD has been named a vice-president, Westchester Lighting Co., Mt. Vernon, N. Y. and The Yonkers Electric Light and Power Co., according to E. P. Prezzano, president.

Mr. Scofield, who has been assistant vice-president in charge of sales of Consolidated Edison Co. of N. Y., Inc. since 1945, succeeds Nils T. Sellman, vice-president who returned October 1 to Consolidated Edison.

Mr. Scofield was associated with the System Companies until World War I. After the war he returned to the United Electric Light and Power Co., and in 1945 was appointed general sales manager of the three companies—Consolidated Edison, Brooklyn Edison, and New York and Queens Electric Light and Power.

Mr. Sellman has been connected with Consolidated Edison System Companies for 31 years. He long has been a prominent figure in the gas industry and has the distinction of being the first person to receive the Charles A. Munroe Award of the American Gas Association, the highest award in the industry. He was extremely active in the development of the automatic gas refrigerator and also of the "CP" gas range. He played a leading part in establishing the A.G.A. Testing Laboratories at Cleveland, Ohio, and is a past-chairman of the Laboratories' Managing Committee.

At various times Mr. Sellman served as chairman of important A.G.A. committees involving research, industrial and commercial projects. He was an A.G.A. director from 1937 to 1941, and chairman of the Commercial, now the Residential Gas Section, in 1933. He is also a former assistant secretary-manager of the Association.

Davis made Cribben & Sexton president

W. C. Davis

H. E. Jalass

WENDELL C. DAVIS has been elected president and Harold E. Jalass, vice-president, Cribben & Sexton Co., Chicago, manufacturer of Universal gas ranges.

Mr. Davis joined the company as controller in 1942, was elected treasurer in 1943, a member of the board in 1946, and vice-president in 1947. He now succeeds W. M. Hillborn who has resigned.

During his association with the company, Mr. Davis has guided all financial matters, as well as handling all war contracts and aiding in the reconversion of plant and equipment to gas production.

Mr. Jalass joined the firm in 1917 and became metropolitan Chicago district manager in 1931. He was appointed general sales manager in 1946. He will continue in his capacity of general sales manager.

Mr. Jalass is a member of the Domestic Gas Range Committee and New Freedom Gas Kitchen Committees, American Gas Association; and a member of the Gas Range Committee and vice-chairman of the "CP" Range Committee, Gas Appliance Manufacturers Association.

Central Vermont personnel advanced

G. W. Rogers

THREE changes in officer personnel of Central Vermont Public Service Corp., Rutland, Vt., has been announced by Albert A. Cree, president, effective October 1. Glover W. Rogers has been elected treasurer, Horace J. Lyne has been elected auditor, and Prescott H. Wellman, formerly secretary and treasurer, will continue as secretary having resigned from the treasurer's duties for reasons of health.

Mr. Wellman, secretary and treasurer since April 1938, moved to Rutland in the company's employ in 1937.

Mr. Rogers has been auditor and chief accounting officer since the organization of the company in 1929, having been previously employed by its predecessor companies. A graduate of Boston University, he is a member of the accounting section of the New England Gas Association.

Mr. Lyne has been employed by Central Vermont Public Service Corporation since February 1945 as assistant to the auditor. From 1942 to 1945, he was assistant treasurer, Vermont Utilities, Inc., Chester, Vt., and chief accountant, Allied New Hampshire Gas Company.

H. J. Lyne

P. H. Wellman

A graduate of Bryant College, Providence, R. I., Mr. Lyne was first employed by the Fall River Gas Works Company at Fall River, Mass., and later as treasurer, Portsmouth, N. H., Gas Company until 1942.

Miller joins Clayton & Lambert Co.

R. J. Miller

ROWLAND J. MILLER, formerly general sales manager for appliances, The Ohio Fuel Gas Co., serving Western Ohio communities from Cincinnati to Toledo, has become associated with Clayton & Lambert Manufacturing Co., Louisville, Ky., and Middletown, Ohio, as special assistant to Charles F. Lambert, president.

Mr. Miller's duties at Clayton & Lambert will be confined initially to the developement and coordination of merchandising and distribution plans for the firm's newly perfected, but as yet unmarketed, absorption-type household refrigerator.

Before assuming supervision of The Ohio Fuel Gas Company appliance sales in 1945, Mr. Miller was sales manager in the Zanesville, Cambridge and Toledo districts, respectively, over a 15-year period. On joining the gas company in 1928 he participated in the development of the retail merchandising program for the then newly-introduced Servel gas refrigerator.

During recent years, Mr. Miller has been active in American Gas Association affairs as a member of its committees on refrigeration, air conditioning and heating, as well as a member of its Eastern Regional Gas Sales Council.

North Shore gas officials promoted

APPOINTMENT of Roy E. Jones as vice-president, sales and advertising, and of William J. Wuestenfeld as vice-president in charge of operation, has been announced by A. W. Conover, president, North Shore Gas Co., Waukegan, Illinois.

Both Mr. Jones and Mr. Wuestenfeld have been executives in the gas company's general office for some time and both are members of the American Gas Association. Mr. Jones recently has been sales and advertising manager, and prior to that was division manager in the Winnetka division office. He was associated with Mr. Conover and Secretary Treasurer Mulholland in Ohio and Colorado before they joined North Shore Gas Company. Mr. Jones did graduate work in Harvard School of Business Administration.

Mr. Wuestenfeld came to Waukegan from Davenport, Iowa, three years ago after having worked in various capacities with United Light and Railway Company subsidiaries for more than 30 years. He was graduated from the engineering school at Purdue University.

W. J. Wuestenfeld (left) and Roy E. Jones who have received new posts at North Shore Gas Co.

Praeger advanced by Brooklyn Union

H. A. Praeger

HOWARD A. PRAEGER has been named to head the publicity and advertising department, The Brooklyn Union Gas Co., succeeding William B. Hewson who is now an assistant vice-president. Frederic H. J. Rider was designated assistant manager.

Mr. Praeger has served with the company since March 1946 and has held the positions of acting assistant manager and assistant manager of the department.

He has an MA degree from the University of Arizona and extensive experience in the publicity and advertising fields.

He was at various times advertising manager of the *Southwestern Cattleman and Farmer,* technical editor of university publications on mining and agriculture, and public relations assistant to the president of the university. For seven years he was associated with F. S. Crofts, New York publishers.

Currently he is an active member of the American Gas Association and a director of the House Magazine Institute.

Mr. Rider joined Brooklyn Union in 1931 as an interview clerk and later served as cadet engineer. Since then he has been a floor salesman in the new business department, district representative, and most recently, district sales manager, metropolitan branch.

Commonwealth & Southern elects directors

F. B. CULLEY, president, Southern Indiana Gas & Electric Co., and L. P. Sweatt president, Mississippi Power Co., have been elected to the board of directors, The Commonwealth & Southern Corp., New York. They replace A. C. Blinn who retired recently as board chairman, Ohio Edison Co., and E. L. Godshalk, president, South Carolina Power Co., which has been sold to South Carolina Electric & Gas Company.

Conlee resigns

GEORGE D. CONLEE has resigned as chief engineer, Conlon division, Conlon-Moore Corporation.

Winn to leave Honolulu for Mainland

JOHN J. WINN, JR., who is credited with an outstanding job in rebuilding and expanding the war-worn Honolulu Gas Co., Ltd., will return to the mainland from Hawaii next winter. Although he resigned as vice-president and general manager at the end of his two-year contract last March, he agreed to stay on and also to pick a successor.

Honolulu Gas Co., adjusted before the war to a city of 180,000 normal population, suffered heavily after Pearl Harbor from overload conditions and from lack of materials and service personnel. Plagued with bad oil, its distribution system was choked with napthalene and dust. Its generators and boilers were badly in need of repair.

On Mr. Winn's recommendation, the company financed a $2,500,000 improvement and expansion program which included new boilers, a new four million cubic foot generator, scrubbing and purification equipment, four new high pressure holders, an ambitious mains clearance project; and a new connecting main between the plant and distribution system. All departmental operations were overhauled.

Under Mr. Winn's administration, service calls dropped 50 percent in two and a half years.

Mr. Winn came to Honolulu Gas Company from Portland, Oregon. He studied at Massachusetts Institute of Technology, and served successively with Stone and Webster, management engineers; Consolidated Gas Electric Light and Power Co. of Baltimore, in rate and sales promotion work; United Improvement Co., Hartford, Conn., and in the Pacific Northwest with Electric Bond and Share Company.

He joined the Honolulu company in March 1946. His future plans have not been announced.

John J. Winn, Jr.

Bond and Share elections listed

T. C. WESCOTT has been elected to the board of directors, Electric Bond and Share Co., New York, to fill the vacancy created by the death of C. E. Groesbeck. H. H. Dinkins, Jr., has been elected secretary of the company, Lester Ginsburg has been elected vice-president, B. M. Betsch has been named secretary-treasurer, and Helen M. Gilbert, assistant secretary.

Mr. Wescott, a graduate of the University of Maine, has been with the Bond and Share system in various engineering and executive capacities for 37 years. He was elected president of Ebasco Services Inc., a wholly-owned service subsidiary, in December 1945 and has been a director of that company since August 1941.

Mr. Ginsburg was educated at Harvard College and Harvard Business School where he specialized in public utilities. He has been treasurer of Electric Bond and Share Company since April 1945. Prior to that time, he was with Columbia Gas & Electric Corp., and during the war served as special assistant to the director general of the War Production Board.

Mr. Betsch, a graduate of New York University, joined the company in October 1944 as assistant secretary and assistant treasurer, and has been a director since January 1945.

Mrs. Gilbert, formerly with Niagara Hudson Power Corp., came to Bond and Share in August 1944. Prior to her recent appointment she was assistant to Mr. Dinkins, who has resigned to go into his own business in Scott, Louisiana.

Houston retires from Rochester post

FRANK M. HOUSTON, active in the field of utility appliance sales for more than 38 years, has retired as domestic sales manager, Rochester Gas & Electric Co., Rochester, N. Y. Mr. Houston was honor guest at a dinner given by his associates August 24, the occasion also marking his sixty-fifth birthday. Guests from more than 20 cities were present, including representatives of most of the national appliance manufacturers.

Before coming to Rochester in 1930, Mr. Houston was engaged in utility sales work in Lockport, Oneonta, Elmira and other places and was one of the pioneers in the promotion of the "CP" gas range campaigns carried on under the direction of the American Gas Association. He was chairman of the A.G.A. Range Committee for two years, a member of the A.G.A. Refrigeration Committee, and also served with other groups in both gas and electric industries. He achieved conspicuous success in local sales campaigns for water heaters and ranges, particularly in directing old stove roundups in his home city.

Mr. Houston organized the company's widely known men's chorus shortly after coming to Rochester and has been its sole director ever since. Although relinquishing his sales activity under the company's pension retirement policy, he will continue to direct the employee chorus.

Walter G. McKie has been appointed domestic sales manager succeeding Mr. Houston, and Lawrence P. Fridley, with the company since 1938, has been named assistant sales manager to succeed Mr. Houston.

Other promotions are Harry J. Taillie as supervisor of builder and architect relations; Norman C. Stott as head of dealer and plumber relations activities, and Harold M. McClease as supervisor of Rochester district sales.

(Left to right) Robert E. Ginna, vice-president; Alexander M. Beebee, president, and Frank M. Houston at "Houston Day" dinner in Rochester

Rockwell engineer

E. E. HEDENE has been appointed chief engineer of all operations of the Nordstrom Valve Division, Rockwell Manufacturing Company. He was formerly chief engineer of the Nordstrom Valve plant at Oakland, Calif., where he had spent the major part of his 22 years' service.

Stewart-Warner promotion

JAMES I. MINTEER has been elevated to secretary, Stewart-Warner Corporation. Mr. Minteer has been assistant secretary and assistant treasurer since 1943 and his appointment filled the vacancy created by the death of A. R. Benson on July 31.

Baldwin advanced by Rochester company

SCHUYLER F. BALDWIN has been appointed manager of the by-products sales and transportation departments, Rochester Gas and Electric Co., Rochester, N. Y. By-product sales include the direction of the company's large coke sales department. He succeeds Victor A. Miller, who retired recently after 35 years of service.

Both Mr. Baldwin and Mr. Miller are members of the American Gas Association. Mr. Baldwin has been operations manager in the Rochester company's gas distribution department and has served with the utility for more than 14 years.

Promotions following Mr. Miller's retirement are as follows:

S. F. Baldwin

Dean Caple, with the company 30 years, becomes superintendent of by-product sales. James L. Coyne, 25 years with the company, is now superintendent of the transportation department.

J. Mallory Loos, 24 years with the company, is the new assistant superintendent of transportation. James J. Casey, 31 years' service, is now superintendent of coke dispatching and delivery.

Kings County sales manager retires

RETIREMENT of James A. Sackett, sales manager, Kings County Lighting Company and Kings Appliance Corp., Brooklyn, since 1930, has been announced.

Mr. Sackett was engaged in gas appliance manufacturing and sales for 31 years before coming to Brooklyn, principally with General Gas Appliance Corporation and Standard Gas Equipment Corp., in which company he was regional sales manager for Metropolitan New York and New England.

During his career of almost 50 years in the gas appliance and gas industries, Mr. Sackett has been a member or chairman of numerous committees of the American Gas Association, the A. G. A. New York-New Jersey Regional Gas Sales Council, and treasurer, Electrical & Gas Association of New York, Inc.

His successor, Robert N. Laux of Brooklyn, was Mr. Sackett's assistant and has been employed by the company for 26 years.

J. A. Sackett

Peak loads

(Continued from page 16)

stalled cost per M.c.f. daily capacity for one day's operations. The projects shown illustrate a wide range of possibilities available under present proved techniques.

Two other possibilities might have been included, the storage of natural gas in liquid form, or as a gas hydrate. These were not considered either because they are not sufficiently well developed or because of insufficient data available. Either or both may enter the picture in the future.

It may be seen from Figure V that propane-air gas offers by far the cheapest means in sight at the present time of providing peaking gas. On the comparable basis of one day's operation, the installed cost per M.c.f. capacity is only 17 percent of the nearest alternative shown.

The principal deterrent to the use of propane for peak reinforcement has been the shortage of winter supply. About 80 percent of the propane marketed in the U.S. is sold for industrial heating and domestic service in the liquefied petroleum gas industry. Most of this industry is east of the Rocky Mountains, where the demand varies seasonally. Even in California the seasonal variation is great. One leading producer states that his winter production rate is about four times the minimum summer rate.

Ample supplies of propane are available for summer filling. Transportation also would not present a problem in the summer, since large numbers of tank cars used in this service are idle.

Any program by the California utilities to use propane for peak day relief necessarily will require installation of enough storage to contain the full winter's supply. The investment therefore will be a function of the number of days reserve required.

Figure VI shows a comparison of the installed cost per M.c.f./day capacity with various number of days of operation.

If the full 590 million c.f. per day required for 1960 were to be obtained through the use of propane-air gas, and storage facilities to permit five full days' operation were provided, the investment of about $21 million would be required. The supply needed to fill the tanks would be 32 million gallons, which represents only 30 days' production of the California excess at 1947 rates.

The use of propane-air gas to reinforce

FIGURE VI—COMPARISON OF INSTALLED COST PER M.C.F. CAPACITY OF PROPANE-AIR PLANT WITH NUMBER OF DAYS' OPERATION

All projects are based on a 50 million c.f. per day project (natural gas equivalent)

Day's reserve	*Cost per M.c.f. capacity*
1	$12.50
5	35.50
10	64.50
15	93.50

the natural gas supply under peak load conditions is therefore a practical possibility, at least until 1960.

Beyond 1960, if the base natural gas supply continues to decline, there will be a steady increase in the frequency of use of peak-reinforcing facilities, and consequently a rapid growth in the quantity of feed stock required each year, as well as the number of days reserve which must be maintained.

If it were possible to use other feed stocks lower in the hydro-carbon series, such as gasoline, the investment in storage tanks would be reduced. Furthermore, there would then exist a possibility of replenishing stocks during a cold winter, which would limit the amount of storage to be maintained.

It would seem desirable for the gas industry to sponsor research in this direction. It may well be that the cost per M.c.f. capacity could be cut considerably below the $35 level indicated for a five-day reserve.

On the basis of propane-air costs, the industry will be required to invest about $2 million per year over the next 11 years in facilities to reinforce the peak day supply.

We can see that the problem of meeting future peak loads is going to present a real challenge to gas engineers in the next decade. If we exercise the foresight and technical competence for which our industry has been noted, that challenge can be met. I am supremely confident that it will be met.

Associated organization activities

Pacific Coast gas men elect Bridge

A. F. Bridge

ARTHUR F. BRIDGE, president, Southern Counties Gas Co., Los Angeles, Calif., was elected president of the Pacific Coast Gas Association at the fifty-fifth annual convention in Santa Cruz, Calif., September 14-16. N. Henry Gellert, president, Seattle Gas Co., Seattle, Wash., was elected vice-president, and D. G. Martin, general auditor, Pacific Gas and Electric Co., San Francisco, Calif., was elected treasurer of the association.

Directors were elected as follows: C. A. Gabriel, Monarch Heating Co.; C. H. Gueffroy, Portland Gas and Coke Co., Portland, Ore., W. M. Jacobs, Southern California Gas Co., and J. S. Moulton, Pacific Gas and Electric Company.

One of the most outstanding meetings in the history of the Pacific Coast Gas Association, the convention was featured by a symposium on the gas industry's PAR program and what it offers to the Pacific Coast.

Robert A. Hornby, chairman, PAR Committee, American Gas Association, and vice-president, Pacific Lighting Corp., San Francisco, Calif., introduced the symposium, after which Frank C. Smith, vice-chairman, A. G. A. General Promotional Planning Committee, and president, Houston Natural Gas Corp., Houston, Texas, discussed the promotional and advertising aspects of the expanded program. Edward P. Noppel, chairman, A. G. A. General Research Planning Committee, and general consultant, Ebasco Services, Inc., New York, described the gas industry's expansive research activities under PAR. W. M. Jacobs, chairman, A. G. A. Residential Gas Section, and manager, general sales, Southern California Gas Co., delivered a talk entitled "The A. G. A. Residential Gas Section Joins PAR in Saying 'It's Time to Sell!' "

During the Luncheon on Wednesday, September 15, the association's Medal of Honor was awarded to R. M. Conner, former director, A. G. A. Testing Laboratories, for outstanding service to the gas industry.

He was cited for having furthered a program of self regulation which involved the testing of gas appliances to insure that they possessed no features of design or construction which would endanger the safety of the users. Mr. Conner had experimented with the testing of gas appliances and had been chosen by the Pacific Coast Gas Association to head a committee to make a study of appliance operation. The report of this committee, as published by P.C.G.A. in 1924, became the "Gas Appliance Testing Code," a pioneer work. The code achieved national recognition, and its authors received the association's "Committee Award" with a gold medal to its chairman, Mr. Conner.

A. H. Sutton, president, Mission Appliance Corp., Los Angeles, Calif., presided over the convention as retiring president of the association. Among the featured addresses were talks by Robert W. Hendee, A. G. A. first vice-president, and president, Colorado Interstate Gas Co., Colorado Springs, Colo., on Our Gas Industry; Frank J. Nugent, president-elect, Gas Appliance Manufacturers Association, and sales promotion manager, Bryant Heater Co., and a talk by N. Henry Gellert, president, Seattle Gas Co., on The Gas Industry in the Pacific Northwest.

The Awards Committee voted honorable mention for C. H. Consterdine, Pacific Gas and Electric Co., for his paper on Service Work Load; C. F. Briscoe, Southern Counties Gas Co., for his paper Underground Storage in Large Diameter Pipes, and C. P. Smith, Pacific Gas and Electric Co., for his paper The Problem of Meeting Future Peak Loads (reprinted in this issue of the MONTHLY).

The Committee Award was presented to the heating division of the manufacturers section, L. M. Hull, Hammel Radiator Engineering Co., chairman, for outstanding work in connection with restrictive legislation affecting the installation of LP-gas appliances.

The association's Basford Trophy was awarded to the P.C.G.A. Technical Section, under the chairmanship of R. T. Peterson, Pacific Gas and Electric Company.

The new president appointed the following sectional chairmen: *Accounting Section*—A. T. Kelly, Pacific Gas and Electric Co.; *Sales and Advertising Section*—F. S. Parmenter, Southern Counties Gas Co.; *Technical Section*—C. A. Renz, Southern California Gas Co.; *Manufacturers Section*—C. A. Gabriel—Monarch Heating Company.

N. Henry Gellert

W. M. Jacobs

President A. H. Sutton (left) presenting the Pacific Coast Gas Association's Medal of Honor to R. M. Conner, former director, A.G.A. Testing Laboratories, for outstanding service to the industry

Melvin heads New Jersey group

HOWARD H. MELVIN, Cumberland County Gas Co., Millville, N. J., was elected president of the New Jersey Gas Association at the group's thirty-third annual meeting in Spring Lake, N. J., September 10.

Louis W. Becker, Jr., Elizabethtown Consolidated Gas Co., Elizabeth, N. J., was elected first vice-president; Robert H. Philipps, Public Service Electric & Gas Co., Newark, N. J., was named second vice-president, and Elmer A. Smith, Public Service Electric & Gas Co., was reelected secretary-treasurer.

Approximately 350 members and guests attended the morning and afternoon sessions which included an analysis of the gas business for 1948, talks on LP-Gas from the Ground Up, New Jersey's Untapped Resources, and papers by speakers outside the industry.

Excerpts from the paper presented by R. J. Rutherford, Worcester Gas Light Co., Worcester, Mass., on domestic gas utilization research are reprinted on page 19 of this issue of the MONTHLY. Additional excerpts from the paper of Roy Alderman, McCann-Erickson, Inc., New York, on advertising appear on page 18.

Midwest Industrial Gas Council

THE Fall meeting of the Midwest Industrial Gas Council will be held at the LaSalle Hotel, Chicago, Ill., on Friday, October 15, 1948. A fine array of speakers is being lined up and a large attendance from all over the Middle West is expected.

G.A.M.A. installs new officers

F. J. Nugent

S. H. Hobson

FRANK J. NUGENT, Bryant Heater Co., Cleveland, Ohio, was installed as president, Gas Appliance Manufacturers Association, on Monday, October 4, during the American Gas Association in Atlantic City.

Other officers who will lead G.A.M.A. during the coming year are: *first vice-president*—Stanley H. Hobson, George D. Roper Corp., Rockford, Ill.; *second vice-president*—Frederic O. Hess, president, Selas Corp. of America, Philadelphia, Pa.; *treasurer*—John Van Norden, secretary, American Meter Co., New York.

G.A.M.A. activities will be spearheaded by the following chairmen: *Controls and Related Accessories Division*—John A. Wolff, sales manager, Milwaukee Gas Specialty Co., Milwaukee, Wisc.; *Direct Heating Equipment Division*—L. O. Reese, vice-president and general manager, Armstrong Products Corp., Huntington, W. Va.; *Domestic Gas Range Division*—W. Frank Roberts, president, Standard Gas Equipment Corp., Baltimore, Md.; *"CP" Manufacturers Group*—A. B. Ritzenthaler, vice-president, The Tappan Stove Co., Mansfield, Ohio.

Other division and group chairmen are: *Gas House Heating and Air Conditioning Equipment Division*—Frank L. Meyer, president, The Meyer Furnace Co., Peoria, Ill.; *Gas Air Conditioning Group*, John K. Knighton, manager of sales, Servel, Inc., Evansville, Ind.; *Gas Broiler Group*—C. L. Hewitt, Jr., general sales manager, L. J. Mueller Furnace Co., Milwaukee, Wisc.; *Gas Conversion Burner Group*—E. A. Norman, Jr., president, Norman Products Co., Columbus, Ohio.

F. O. Hess

John Van Norden

Also *Gas Furnace Group*—Keith T. Davis, chief engineer, Bryant Heater Co., Cleveland, O.; *Gas Meter and Regulator Division*—A. F. Benson, vice-president in charge of production, American Meter Co., Erie, Pa.; *Gas Valve Division*—Philip S. Harper, president, Harper-Wyman Co., Chicago, Ill.; *Gas Water Heater Division*—Leland M. Feigel, sales manager, water heater division, Servel, Inc., Evansville, Ind.; *Hotel, Restaurant and Commercial Gas Equipment Division*—Walter H. Rudolph, president, Savory Equipment, Inc., Newark, N. J.; *Industrial Gas Equipment Division*—Alvin M. Stock, Partlow Corp., New York, N. Y.

Mid-West gas school and conference

A COMPREHENSIVE discussion of problems in gas utilization, production, metering and distribution, featured the two-day session of the twenty-fifth gas school and conference of the Mid-West Gas Association at Iowa State College, Ames, Iowa, September 13-15.

Under the chairmanship of L. J. Eck, first vice-president of the association, an interesting program was presented with discussions of Peak Shaving Control, General Aspects of Cathodic Protection for Pipe Lines, Remote Measurement and Control, and Field Testing and Maintenance of Large Capacity Meters.

J. Stanford Setchell, assistant utilization engineer, American Gas Association, presented an informative paper on Service Problems and Techniques at the Monday morning session. An inspection trip of Northern Natural Gas Company's new pumping station at Ogden, Iowa, was held for those interested in seeing equipment in operation in the field.

N.E. home service conference

THE relationship between home economics education and utility home service work will be explored at the fourth annual home service development conference of The New England Gas Association at the Hotel Statler, Boston, Mass., on October 22.

Ella A. Heyne, home service director, Northampton Gas Light Co., and vice-chairman of the N.E.G.A. home service group, is chairman of the program committee.

Industrial gases

(Continued from page 27)

result is more easily obtained by merely heating the gases up and increasing the energy of collision rather than lowering the energy required for reaction at each collision.

These following important facts stand out from the survey: (1) Detailed theories of combustion phenomena are many and varied; (2) there exists no unified theory covering all combustion processes; (3) the circumstances under which various pieces of experimental work are carried out often contribute greatly to the end results.

In regard to the purpose of the present investigation, however, the study indicates that there is one phenomenon which stands out above all others. Whereas normal flame propagation velocities are comparatively slow, nature itself gives us an example of conditions under which combustion can take place of the order of one thousand times as fast. This is the process known as detonation.

If it were possible to control this natural phenomenon, intensities of heat energy release many times greater than anything now employed could be realized. Although the detonation process is known from the standpoint of its occurrence, very little is known about it. Certainly the conditions under which detonations usefully can be produced and controlled have not been explored.

Supposedly, the detonation process consists of a shock wave passing through a combustible mixture with a velocity in excess of the velocity of sound. It is believed that the combination of molecules and the energy release is accomplished during the passage of the shock. Under such circumstances the release of energy for most practical purposes would be instantaneous. Bearing these factors in mind, the most fruitful field for the present investigation appears to be the study of detonation processes. This is not the first project to investigate detonation. Many have preceded it, and indeed there is even a mathematical formulation of the detonation process in existence. But nevertheless there have been no industrial applications of detonation processes at all. As a matter of fact, to the combustion engineer the process of detonation always has spelled trouble, often

disaster. Can the detonation process be made to fulfill a practical industrial function?

The past studies of detonation processes have been carried out more or less on static models; that is to say, a single detonation has been set up and its effects observed. This information has led to the mathematical formulation and to the ideas which now prevail in regard to the rate of travel and intensity of the shock wave during the detonation process. Nevertheless, the critical pressure which must be obtained to initiate detonation, how it acts under various circumstances, and what velocities of the shock wave mean in energy release are really questions for argument today.

If it were possible to construct a pump which would force a combustible mixture through a burner nozzle at the detonation velocity and detonate the mixture continuously, then supposedly energy releases of the order of one thousand times greater than is now possible would be attained. However, just a cursory calculation illustrates that even a small burner to release energy at this rate would require a pump out of proportion to the energy released. This does not appear to be a profitable direction of attack and would at this time seem to contain insurmountable difficulties.

If it were possible to carry out intermittent detonations in a chamber, then by controlling the frequency of the occurrence, it should theoretically be possible to simulate energy releases corresponding to any flame velocity up to the detonation velocity. Of course, this is only an artificial way of varying the normal flame propagation velocity, but since the frequency of the detonation in a given chamber would directly affect the energy release per unit volume the frequency should provide an easy control of the simulated flame propagation velocity.

This idea appears to be an encouraging possibility and is one of the lines of attack of the present work to alter the "realized" flame propagation velocity.

The proper experimental approach to the study of detonation is not clear. Past investigators have studied single detonations occurring in a static mixture. The results obtained are somewhat contradictory and cannot be used to explain the phenomena observed in resonant jet chambers. For this reason, it appears that the detonation process should be studied under dynamic or rapidly changing conditions.

To accomplish this purpose, the present investigators have built a resonant jet chamber with a rotary port type valve. The combustible mixture flows into the chamber almost continuously, being interrupted only during the brief detonation interval. It is possible to force resonance at various frequencies by controlling the angular speed of the valve and varying the dimensions of the chamber. Thus, there is set up a regular and controlled continuous series of detonations.

To measure the pressures attained during the course of the detonation, a quartz crystal has been placed in communication with the chamber and connected through an amplifier to an oscillograph. A synchronizing device is used to reveal the time relationship between the detonation progress and the flow of gases into the chamber. The experimental work is now directed towards gathering more detailed information concerning: (1) the pressures attained during the detonation as a result of the shock waves, (2) the velocity of travel of the shock waves, (3) the temperatures attained, and (4) the influence of the geometry of the detonation chamber.

The work was undertaken in March 1947 and to date has demonstrated that energy releases by this type of system follow the expected pattern, and energy releases of 16 million B.t.u. per cubic foot per hour have been easily obtained to date. The experimental work is now well under way and it is hoped that sufficient fundamental knowledge of the detonation processes soon can be assembled and put into the combustion engineer's hands in a useful form. Perhaps he may even use detonation processes as a useful tool in energy release, rather than thinking of detonation processes as an evil about which he must always worry.

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Public Relations is—YOU!

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people's
Confidence, friendship, good will,
You can knock higher than several
steeples
If you're a grouch and a pill.
You put the blessing, or you put the
curse on all
Planning and policy too,
Public Relations is private and personal,
Public Relations is YOU!

It is by you that the customer judges
You give the Public its slant,
You're the promoter of grins or of
grudges,
It's the impression you plant
That'll decide if your firm's reputation's
Proved by performance all through;
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Berton Braley, Service

OBITUARY

Bruno Rahn

Bruno Rahn

who worked his way from office boy to president, Milwaukee Gas Light Co., Milwaukee, Wisc., died September 6 in Rhinelander, Wisconsin.

Mr. Rahn served as a director, American Gas Association, from 1940 to 1945 and was continuously active in Association affairs for many years.

He was a past-president of the Wisconsin Utilities Association and also of the former Wisconsin Gas Association.

Joining the Milwaukee Gas Light Company in 1900, he served in numerous capacities until 1939 when he was elected president. His retirement was announced early this year.

Pipe plant projected

A THIRTY-FIVE acre tract of land in the San Francisco Bay area at Richmond, Calif., has been purchased by United States Pipe & Foundry Co., Burlington, N. J., for erection of a plant to produce cast iron pressure pipe made by the centrifugal process. This product is used widely in water-works systems throughout the United States and foreign countries, in gas systems, sewage works, and many other industries.

The announcement was made by D. B. Stokes, vice-president of the company and a director of the American Gas Association.

Tell your employees

(Continued from page 24)

employees. Too often they're designed and written with the executive desk in mind rather than the line crew or the gas gang. A glib facility with the technical jargon of economics may impress the economists within your organization but Joe Gaspipe is more likely to be confused or completely apathetic.

And when I refer to the technical jargon of economics I have in mind articles or stories written for employee readers by technicians such as engineers or accountants. Many times these articles evidence a straining to tell too complete and detailed a story, or to tell it in such a way that no fellow engineer or accountant can criticise it for failure to cover all details. But the story was never intended to please technical experts, but rather to interest Joe Average Employee, who won't read beyond the first three or four lines unless his interest is held. And this isn't too difficult.

Use analogies

Proof that even the most complex scientific and economic matters are capable of being written about so that the ordinary reader may find them understandable is offered by the science and business columns of such publications as *Time, Newsweek,* and similar periodicals. Subjects as diverse and as difficult as the atom, the solar system, the making of synthetic rubber, and economic theory are made relatively easy and absorbing reading through apt, vivid analogies from common experience and everyday life. It can be done. Applying similar intelligence and skill to the topics we'd like to talk about to our employees, it follows that we might expect similarly successful results.

After all, our ordinary employees are not quiz kids. Nor is their educational background extraordinary. In my own company, which is, I assume, fairly typical, about 60 percent of our employees have less than a high school education; 34 percent have only grammar school training or less. The kind of vocabulary and approach to use in reaching these people is naturally and properly quite different from the kind that one would use in interesting readers of, say, *Fortune* or *Business Week*.

Putting out a publication that employees read regularly and with interest often has little to do with winning prizes in the award and better copy contests run by the utility industry or by business in general. I say this with no wish to flay award contests. In a number of respects they do much good and can be quite helpful to those in the industry who take part. But in a very important respect they are of little use and may well be highly misleading, and I refer to the "better copy" aspect of the matter.

You would be naive indeed if you were to suppose that studying the "better copy" of the contest winners would assist you in obtaining better-read or best-read copy. On the contrary, what may be good copy judged by the standards of *Life* or the *Saturday Evening Post* may be quite indifferent copy judged from the viewpoint of attracting and holding your employees' readership And what cannot be emphasized too strongly is that we are not in competition with *Life, Look* or the *Saturday Evening Post*. Our problem is to get and hold the interests of a very special group—our employees. We are not on the newstands. We're not trying to reach the general citizen-reader. But we do want to reach a single employee group—a group which on the whole reads relatively little.

On this account, if no other, you would be well-advised to view with a healthy cynicism any notion of changing over your own copy to conform to that of award winners of other companies until you've exposed them to careful examination. In addition, there are further practical considerations in connection with the judging of copy and determining of awards that need, it seems to me, both stating and airing. The whole idea of copy judging, in fact, is so subject to variables, ambiguities and plain unknowns that both credulity and common sense are badly over-strained.

For example, no one can expect the busy, prominent men and women who are asked to judge the entries in most of the large-scale contests to be able to spend the time necessary to read all the annual reports, booklets, advertisements, or house organs submitted. They should have to drop their normal jobs, and spend days, if not weeks, doing nothing else. So they follow what is the only practicable method under these circumstances and, after a quick look-see at all the entries, they select, necessarily on a basis of attractive format and clever art work, those that seem more promising for further inspection. These receive somewhat closer study, but even here, in cases where there are many entries, there must be additional drastic winnowing. Finally, when the entries are reduced to a small, manageable number, these receive a good deal closer attention, and from them the winners are chosen.

Our company has won its modest share of such contest awards and there is no taint of sour grapes when I urge top management not to be over-impressed by failure to win awards in employee magazines and stockholder's Report contests. The sauce of multi-color covers, sharp photography, smart art work and format, often overlays poorly prepared material which the stockholder and employee reject as too tough and indigestible for their appetite.

And what doth it profit a man to cover his office wall with prize awards and suffer the loss of his employee or stockholder readership.

The fundamentals of easy readability for a mass audience can be given in one sentence: Let your words be simple and sentences short. Make it easy to read. And I don't see why there need be any feeling that trying to keep one's sentences brief and simple is beneath one's dignity. The Bible, which has certainly not lacked the readership of ordinary people in the past, is famous for the simplicity and clarity of its sentence structure. We don't have to be difficult and pontifical and wordy just because we're treating serious matters. Yet all too often we are, and to our own detriment.

Avoid verbiage

Sometime ago our company was urged by a large national organization to distribute a message to all our employees. This message was studded with such $10 wordage as "preemptive—correlation—insatiable—axiomatic—machinations—recalcitrant—unabashed—wittingly-irrefutable—ludicrous—collectivism—" and such imposing phrases as "humanitarian reformist—countenanced sedition—inexorable result—correlative theme—malign perfection—indoctrinated to subordinate truth to policy—and the techniques noted are illustrative rather than exhaustive."

Can you imagine Joe Gaspipe or Sam Serviceman dallying long with that sort of high-falutin talk? If we have to phrase our statements to employees in such language as that, we might as well give up now.

I have concentrated largely on employee periodicals, but most of these latter remarks hold equally true of other types of important employee printed material, among them the employees' infor-

mation booklet, employees' annual reports, employees' news services, bulletin board notices, letters of instruction, and similar material. An information booklet should be, as its name implies, an informative introduction to a company for a new employee. It is a way of helping both to get off to a good start together. When well done, it leaves employees not merely informed about basic company policies but with the feeling that it should be a pretty good outfit to work for. Here also the ultimate value of this employee relations activity is absolutely dependent upon how accurately it reflects actual company policies and practices, and it is a sound assumption that they are sufficiently favorable to be worth talking about.

Write readably

The old familiar problems of readability in style and language plague those responsible for making up these booklets. To an extent, of course, you can't escape a certain dry technicality of expression and at the same time be exact. But that still does not excuse information booklets that read more like legal contracts than anything else. I have seen paragraphs in some which left me with the feeling that they required a lawyer to interpret.

It is often advantageous for a single writer to do a smooth rewrite of the whole information booklet if the separate topics of which it is composed have been farmed out to be written by the appropriate departments concerned. Otherwise, it tends to jog along in a dull, formal and jerky fashion, leaving a reader anything but interested. Too many cooks can spoil a booklet as well as a broth.

To be sure, it is easy for all of us to criticize and yet remain blandly passive and unconcerned about lengthy, stereotyped verbiage put out by ourselves or our own organization. I am thinking of the ponderous, starchy prose apparently considered the obligatory dress for official corporate thought and communication, and a good deal that's only semi-official.

Though this prose has even less to recommend it for easily understandable employee reading than the samples I just quoted, it has become an established pattern difficult to escape from, and is imposed by practice on all literate employees. The supervisor, whose spoken language is clear and to the point, often seems to imagine he has to show his "education" when he writes a letter of instruction, masks his message in a profusion of cliches and bromides, and decorates it with heavy, involved and cloudy wordiness which makes comprehension needlessly slow and difficult.

Let me offer some examples. I'll point the finger of disapproval first at the habit of stretching out a sentence by using an imposing phrase, often of a legalistic turn, when a single word will do just as well like "with the exception that" for "except"; or "in place thereof" for "instead"; or "of a promotional nature" for "promotional"; or "paid in connection with" for "paid for."

Then, there is a frightful over-use of a few rather pompous words and phrases. Things are seldom started or ended; they are "put into execution" and, when the time comes, "terminated." Methods of doing business are occasionally changed or improved; but much more often they are "facilitated," or "materially expedited." "Supplement" is another similar favorite, in either the noun or verb form.

Many department heads, in their writing, at least, are remarkably genteel. "Presently" seems to be used a good deal more than "now," and changes made are invariably requested "to be noted." One wonders how many thousands of dollars could have been raised if a small fine were levied upon the use of such constant stereotypes as "to advise you," or "to call your attention at this time," or the introductory "It has recently been observed," or the concluding "Too much stress cannot be put upon." And probably the adjective "incidental," as in the phrase "expenses incidental to," should be included in this list, as it receives quite as severe a beating.

The next sentence, taken from an actual letter of instruction is an example par excellence of a man getting lost both in his thoughts and in his words. "An article of a general nature, no matter what fuel or for what purpose is usually higher in the winter and the consumption is higher with few exceptions."

I doubt whether any average reader could read this next sentence without reviewing it again to build up the meaning slowly and painfully: "When superseding Joint Line Memorandums are sent through where the departure from that which was anticipated under the original requisition does not vary materially, a superseding requisition will not be required."

Open confession is reputed to be good for the soul so I'd like to add that this last gem of scrambled syntax was written years ago by a gent who, at the time, rated himself better than fair in both syntax and accounting—one Charles J. Allen.

Can you imagine an ordinary individual understanding on one reading the following explanation of the fuel cost adjustment to his gas bill?

"If the weighted average cost of fuels per 1,000 cubic feet of gas increases above or decreases below the average cost for the five year period ending January 1, 1942 by more than two cents per 1,000 cubic feet, then the rate for gas will be increased or decreased by the amount of departure from the five year average cost figured to the nearest cent per 1,000 cubic feet. The amount of such increase or decrease, if any, shall be determined from the weighted average cost of fuels for the three preceding months and shall apply during the month following such determination."

The average person would be unusual indeed if he understood that explanation on the second reading.

All these suggestions concerning employee booklets, magazines, information booklets, and the rest, make up the various medicines and unguents that may be prescribed for what seem to me one of the chief ailments and sore spots of our employee relations organism, insofar as this is affected by a company's communications with its employees. Applied externally with discretion and understanding they can do much both in alleviating some of our stubborn ills and weaknesses and in fostering that strong, healthy company loyalty and unity we all desire and that makes for better relations all around.

Management

● A professor of medicine at the University of Southern California had taken his boys through all the texts he knew in medicine during their four-year course. At graduation he called them together and said: "Now that you have finished your course I want to tell you one thing more. Half of all I have taught you is wrong. But the trouble is I don't know which half."

So break your own problems down. Find solutions of your own testing. That is what the professor, in effect, bade his students do. That is management.

—Paul Garrett, *Modern Industry*

New A.G.A. members

Gas companies

Perry Gas Co., Perry, Iowa (Herbert P. Ives, manager)

Phenix Natural Gas Co., Phenix City, Ala. (J. H. White, Jr., vice-president)

Associate companies

Warren Petroleum Corp., Tulsa, Okla. (G. L. Brennan, manager, LP-gas div.)

Manufacturer companies

Allcraft Manufacturing Co., Inc., Cambridge, Mass. (George E. MacLean, president)

Aluminum Goods Mfg. Co., Manitowoc, Wisc. (Ray H. Fay, contract sales manager)

Barber-Greene Co., Aurora, Ill. (E. D. Stearns, general sales manager)

Bell Range Co., Los Angeles, Calif. (J. J. Thompson, partner)

Big Run Manufacturing Co., Big Run, Pa. (Gerald Sharrer, partner)

Chicago Bridge & Iron Co., New York, N. Y. (C. H. Scheman, engineer)

Conco Engineering Works, Mendota, Ill. (H. F. Dean, director of research)

The Cooper-Bessemer Corp., Mount Vernon, Ohio (S. E. Johnson, general sales manager)

Dixie Furnace Co., Columbia, Tenn. (Thomas E. Merritt, manager)

General Furnace Co., Arcadia, Calif. (Charles Marvin, manager)

Gray & Dudley Co., Nashville, Tenn. (Foskett Brown, president)

Hart & Crouse Corp., Oneida, N. Y. (R. W. Coates)

Heatmaster, Inc., Bainbridge, Ga. (R. L. Higdon, 1st vice-president)

Hotentot Co., Inc., Omaha, Nebr. (E. E. Dehart, president)

Hunt Heater Corp., Nashville, Tenn. (R. C. McCauley, vice-president, engineering)

Iron Fireman Mfg. Co., Cleveland, Ohio (E. C. Webb, manager)

Light's Manufacturing Co., Inglewood, Calif. (Paul W. Light, president)

Meynell Manufacturing Co., Erie, Pa. (A. G. Engstrom, sales engineer)

Pittsburgh Coke & Chemical Co., Pittsburgh, Pa. (Russell H. Coe, manager tar base protective coatings div.)

Prat-Daniel Corp.—Thermobloc Div., Port Chester, N. Y. (E. M. Tarnoff, manager)

Stiglitz Furnace & Foundry Co., Louisville, Ky. (E. N. Stiglitz, president)

The Supreme Heater Co., Cleveland, Ohio (David Miller, president)

H. Emerson Thomas & Associates, Westfield, N. J. (H. Emerson Thomas, owner)

United States Safety Service Co., Kansas City, Mo. (A. F. Parmelee, president)

Utility Controls Co., Los Angeles, Calif. (Jesse H. Turner, secretary)

A. R. Wood Mfg. Co., Luverne, Minn. (D. M. Lippi, manager)

Individual members

H. M. Allen, Cities Service Gas Co., Oklahoma City, Okla.

Carl W. Anderson, Pacific Gas & Electric Co., Sacramento, Calif.

Chris B. Arntz, Southern California Gas Co., Los Angeles, Calif.

William B. Ashby, American Meter Co., Inc., Philadelphia, Pa.

Ray E. Bachus, The Cincinnati Gas & Electric Co., Cincinnati, Ohio

Thomas H. Barratt, The Philadelphia Gas Works Co., Philadelphia, Pa.

Jacob T. Barron, Public Service Corp. of New Jersey, Newark, N. J.

Stuart Beal, Dept. of Public Utilities, Richmond, Va.

F. H. Belden, Carbide & Carbon Chemicals Corp., Texas City, Texas

F. L. Bennett, Standard Oil Co. of N. J., New York, N. Y.

Ralph H. Bigger, Western Kentucky Gas Co., Owensboro, Ky.

Malcolm W. Black, Malcolm W. Black & Co., New York, N. Y.

S. Block, Universal Brass Distributors, Arlington, N. J.

Edward J. Bodner, Public Service Electric & Gas Co., New Brunswick, N. J.

R. Wade Bowman, Pittsburgh Bridge & Iron Works, Pittsburgh, Pa.

Harmon W. Boyes, United Gas & Fuel Co., Hamilton, Ontario, Canada

Ralph Bradley, Godfrey L. Cabot, Inc., Boston, Mass.

John J. Brandt, Cribben & Sexton Co., Chicago, Ill.

E. C. Braun, E. C. Braun Co., Berkeley, Calif.

E. J. Brown, Pacific Gas & Electric Co., Sacramento, Calif.

Wayne E. Broyles, Brance-Krachy Co., Inc., Houston, Texas

Charles C. Brunner, 295 Fulford Blvd., North Miami Beach, Fla.

Walter E. Caine, Texas Eastern Transmission Corp., Shreveport, La.

Edward C. Campbell, The E. F. Griffiths Co., Philadelphia, Pa.

Carl I. Carlson, Pennsylvania Power & Light Co., Allentown, Pa.

Lawrence T. Chambers, Philadelphia Electric Co., Morton, Pa.

Prof. Herbert B. Charmbury, The Pennsylvania State College, State College, Pa.

James W. Chrisman, The East Ohio Gas Co., Cleveland, Ohio

Prof. John D. Clendenin, The Pennsylvania State College, State College, Pa.

Allison R. Collard, Consolidated Edison Co. of N. Y., Inc., New York, N. Y.

Orrin B. Cook, Battle Creek Gas Co., Battle Creek, Mich.

Dominic F. Cundari, Public Service Electric & Gas Co., Harrison, N. J.

Charles E. Cunningham, Selas Corp. of America, Philadelphia, Pa.

John DeLong, Consumers Gas Co., Reading, Pa.

Maurice J. Dewey, Dewey Gas Furnace Co., Detroit, Mich.

Charles T. Dickeman, Michigan-Wisconsin Pipe Line Co., Detroit, Mich.

Raymond F. Dienstl, Chain Store Age, New York, N. Y.

John B. DiRienzo, Public Service Electric & Gas Co., Harrison, N. J.

William N. Donalson, United Gas Pipe Line Co., Shreveport, La.

Orice A. Dyson, Southern California Gas Co., Los Angeles, Calif.

John F. Ehlen, Central Illinois Light Co., Peoria, Ill.

Warren H. Emmons, Braden Winch Co., Tulsa, Okla.

Joseph F. Farley, New York State Electric & Gas Corp., Ithaca, N. Y.

W. Bertland Fast, American Liquid Gas Inc., Detroit, Mich.

E. S. Fields, The Cincinnati Gas & Electric Co., Cincinnati, Ohio

Ira D. Findley, The Manufacturers Light & Heat Co., Pittsburgh, Pa.

J. J. Fisher, Southern California Gas Co., Los Angeles, Calif.

Willis P. Fisher, Southern California Gas Co., Glendale, Calif.

E. Albert Furkert, Gas Appliance Service Inc., Chicago, Ill.

Robert M. Geisenheyner, Perry Gas Co., St. Paul, Minn.

Malcolm E. Gill, Pennsylvania Power & Light Co., Allentown, Pa.

William F. Goffe, Jr., Equitable Gas Co., Pittsburgh, Pa.

John V. Goodman, Equitable Gas Co., Pittsburgh, Pa.

Paul B. Guyer, Cia Siderurgica Nacional, Brazil, S. A.

Charles W. Hahn, Scherck Richter Co., St. Louis, Mo.

Jene Harper, Franklin Supply Co., Chicago, Ill.

John Large Harrison, The Harrisburg Gas Co., Harrisburg, Pa.

John Hayes, Equitable Gas Co., Pittsburgh, Pa.

Wilbur Hess, Fridley & Hess, Houston, Texas

Walter T. Hofstetter, The Peoples Gas Light & Coke Co., Chicago, Ill.

Bernard C. Holman, Minneapolis Gas Co., Minneapolis, Minn.

Ernest J. Howe, Rochester Gas & Electric Corp., Rochester, N. Y.

Walter D. Howell, Pacific Gas & Electric Co., Oakland, Calif.

Rudolph Jenny, Pacific Gas & Electric Co., San Francisco, Calif.

Luella Johannsen, The Peoples Gas Light & Coke Co., Chicago, Ill.

W. E. Johns, Pacific Public Service Co., San Francisco, Calif.

Herbert E. Johnson, The Hartford Gas Co., Hartford, Conn.

Horace Johnson, Liverpool Gas Co., Liverpool, England

Buy-Words

● There is usually only one reason why a man buys, but with a woman it might be one of eight—so they say; (1) because her husband says she can't have it; (2) it will make her look thin; (3) it comes from Paris; (4) her neighbors can't afford it; (5) nobody has one; (6) everybody has one; (7) it's different; (8) "because." —*Selected*

Robert H. Jones, Glenwood Range Co., Taunton, Mass.
R. W. Joyce, Pacific Gas & Electric Co., San Francisco, Calif.
H. G. Keesling, Pacific Gas & Electric Co., San Francisco, Calif.
John W. Kelly, Blackstone Valley Gas & Electric Co., Pawtucket, R. I.
Leroy J. Kemp, Southern California Gas Co., Los Angeles, Calif.
E. Carey Kennedy, South Jersey Gas Co., New York, N. Y.
Frank L. Kiernan, Michigan Consolidated Gas Co., Detroit, Mich.
Raymond Kindig, Pacific Gas & Electric Co., San Francisco, Calif.
Prof. Corliss R. Kinney, The Pennsylvania State College, State College, Pa.
Ruth Klumb, Armour & Co., South San Francisco, Calif.
C. Knudsen, Pacific Gas & Electric Co., Eureka, Calif.
Theodore A. Koenig, The Peoples Gas Light & Coke Co., Chicago, Ill.
Howard E. Korb, The Cincinnati Gas & Electric Co., Cincinnati, Ohio
Paul Krikscus, Johns-Manville Sales Corp., Los Angeles, Calif.
Paul Krikscus, Jr., Johns-Manville Sales Corp., Los Angeles, Calif.
Charles B. Kull, Central Illinois Public Service Co., Mattoon, Ill.
Albert G. Kulp, Oklahoma Natural Gas Co., Tulsa, Okla.
Paul K. Kuzma, The Manufacturers Light & Heat Co., Pittsburgh, Pa.
Robert Kyle, The Gas Machinery Co., Cleveland, Ohio
James A. Laing, The Peoples Gas Light & Coke Co., Chicago, Ill.
W. D. Laughlin, Pacific Gas & Electric Co., Woodland, Calif.
T. E. Lawson, The Laclede Gas Light Co., St. Louis, Mo.
Paul B. LeBoeuf, A. O. Smith Corp., Kankakee, Ill.
Charles E. Lee, Southern California Gas Co., Los Angeles, Calif.
A. W. Levan, Cities Service Gas Co., Oklahoma City, Okla.
Thomas H. Little, The Sharples Corp., Philadelphia, Pa.
John F. Lynch, La Gloria Corp., Corpus Christi, Texas
James F. Mackey, Continental Carbon Co., Sunray, Texas
Max M. Mahaffey, Cities Service Oil Co., Bartlesville, Okla.
F. H. Maloney, F. H. Maloney Co., Houston, Texas
Grant H. Marsh, Toronto Hardward Mfg. Co., Ltd., Toronto, Ontario
Lessl Mattia, Smalteria & Metallurgica Veneta S.A., Vicenza, Italy
James L. Maxwell, Jersey Central Power & Light Co., Asbury Park, N. J.
Edward J. Mayland, Gas Magazines, Inc., Madison, Wisc.
L. P. McArdle, Pacific Gas & Electric Co., San Francisco, Calif.
J. P. McCullough, United Gas Pipeline Co., Shreveport, La.
Jack L. McDonald, Arizona Edison Co., Phoenix, Ariz.
Beach J. McMillen, The Cincinnati Gas & Electric Co., Cincinnati, Ohio
Hal B. McNichols, Columbia Engineering Corp., Columbus, Ohio
Walter J. Merwin, Institute of Gas Technology, Chicago, Ill.
Ralph H. Meserve, Northern States Power Co., St. Paul, Minn.
C. E. Messinger, San Diego Gas & Electric Co., San Diego, Calif.
George J. Meyers, Semet Solvay Div.—Allied Chemical & Dye Corp., Buffalo, N. Y.
Samuel R. Milbank, Wood, Struthers & Co., New York, N. Y.
Dave S. Mobley, James Graham Mfg. Co., Los Angeles, Calif.
Jack W. Moore, Floridin Co., Warren, Pa.
Joseph W. Moorman, Southern California Gas Co., Los Angeles, Calif.
Francis W. Nash, Southern California Gas Co., Los Angeles, Calif.
Harry V. Nelson, Koppers Co., Inc., Pittsburgh, Pa.
Harold A. Noble, San Diego Gas & Electric Co., San Diego, Calif.
A. J. Noia, Pacific Gas & Electric Co., San Francisco, Calif.
J. Paul O'Brien, The Cincinnati Gas & Electric Co., Cincinnati, Ohio
William W. Odell, Columbia Engineering Corp., New York, N. Y.
Ove M. Olsen, Sellers Engineering Co., Chicago, Ill.
Dorothy Jo Osborne, Dept. of Public Utilities, Richmond, Va.
George A. Palmer, New England Power Service Co., Boston, Mass.
F. J. Parker, Pacific Lighting Co., Los Angeles, Calif.
Ernest K. Parks, North Canyon View Drive, Los Angeles, Calif.
Albert E. Peters, North Ninth Ave., Scranton, Pa.
Walter C. Peters, Northern States Power Co., St. Paul, Minn.
James S. Phillips, The Ohio Fuel Gas Co., Columbus, Ohio
Fred S. Pickford, The Hartford Gas Co., Hartford, Conn.
Edward S. Plank, Tennessee Gas Transmission Co., Houston, Texas
J. S. Powell, Southern California Gas Co., Los Angeles, Calif.
T. Laurence Powers, Public Service Electric & Gas Co., Paterson, N. J.
B. M. Randall, Iowa-Illinois Gas & Electric Co., Rock Island, Ill.
Leo G. Ranta, Chicago Pipeline Co., Chicago, Ill.
E. Renaudie, Gaz de France, Paris, France
Harold P. Richmond, Cumberland County Gas Co., Millville, N. J.
I. P. Robinson, Interstate Natural Gas Co., Inc., Fairbanks, La.
C. F. Royse, The Fluor Corp., Ltd., Houston, Texas
Robert C. St. John, Koppers Co., Inc., Kearny, N. J.
Earl Sandmeyer, Corporate Intelligence Inc., New York, N. Y.
E. C. Saunders, San Diego Gas & Electric Co., San Diego, Calif.
Albert Schaeffer, Central Illinois Light Co., Springfield, Ill.
Chester J. Schmidt, J. O. Ross Engineering Corp., Detroit, Mich.
Fred J. Schmidt, Auburn Machine Works, Inc., Auburn, Nebr.
Karl E. Schmidt, Michigan Consolidated Gas Co., Detroit, Mich.
Waldo W. Schram, A. O. Smith Corp., Kankakee, Ill.
O. J. Semmes, Jr., City of Pensacola—Gas Dept., Pensacola, Fla.
Patrick R. Shea, Southern California Gas Co., Van Nuys, Calif.
George B. Shelton, U. S. Bureau of Mines, Amarillo, Texas
Donald A. Sherman, Suburban Propane Gas Corp., Derby, Conn.
J. M. Shields, Equitable Gas Co., Pittsburgh, Pa.
Dr. Ronald B. Shuman, University of Oklahoma, Norman, Okla.
John B. Simpson, Michigan Gas Storage Co., Jackson, Mich.
John Smith, Minneapolis-Honeywell Regulator Co., New York, N. Y.
Walter D. Smith, Worthington Pump & Machinery Corp., Tulsa, Okla.
Fred Stadelman, Otto Construction Corp., New York, N. Y.
Henry Stockmann, Parkhill-Wade, Los Angeles, Calif.
Joseph B. Storey, United Gas Pipe Line Co., New Orleans, La.
William A. Sumner, Jr., Gas Magazines, Inc., Madison, Wisc.
Evar E. Swarvar, Michigan Consolidated Gas Co., Big Rapids, Mich.
Robert H. Swoyer, Pennsylvania Power & Light Co., Allentown, Pa.
Joseph W. Thayer, Chevrolet Motor Div., Detroit, Mich.
Edward W. Thoerner, Jr., Equitable Gas Co., Pittsburgh, Pa.
H. W. Thomas, Pacific Gas & Electric Co., Marysville, Calif.
A. Ray Thomson, Philadelphia Electric Co., Philadelphia, Pa.
Leland A. Todd, Central Illinois Light Co., Springfield, Ill.
Donald A. Vorum, Battelle Memorial Institute, Columbus, Ohio
William W. Walker, ESS/IND/GHQ/SCAP, APO 500, San Francisco, Calif.
J. Andrew Waltman, Southern California Gas Co., Glendale, Calif.
William Welch, Jr., Long Island Lighting Co., Mineola, N. Y.
John F. Werner, Consolidated Edison Co. of N. Y., Inc., New York, N. Y.
Fred J. Wetzel, Ingersoll-Rand, Tulsa, Okla.
John Weyble, Broad Street Associates, Inc., New York, N. Y.
Norman J. Wheeler, Delaware Power & Light Co., Wilmington, Delaware
Raymond W. White, Pacific Gas & Electric Co., San Francisco, Calif.
John C. Williams, Rosslyn Gas Co., Arlington, Va.
Alan H. Wilson, Southern California Gas Co., Burbank, Calif.
Smallwood L. Wolfe, Consolidated Gas Electric Light & Power Co. of Baltimore, Baltimore, Md.
Robert A. Wood, Citizens Gas Fuel Co., Adrian, Mich.
James F. Wright, Jr., Public Service Electric & Gas Co., Newark, N. J.
Francis C. Yeazel, Pipe Line Service Corp., Westfield, N. J.
William H. Zimmer, The Cincinnati Gas & Electric Co., Cincinnati, Ohio

CONVENTION CALENDAR

1948

OCTOBER

Week of October 4 •A. G. A. Annual Convention and G.A.M.A. Exhibit, Atlantic City, N. J.

14-15 •Texas Mid-Continent Oil and Gas Association, annual meeting, Fort Worth, Texas

18-22 •National Safety Congress, Chicago

20-22 •American Standards Association, annual meeting, Waldorf Astoria, New York

25-29 •National Metal Exposition & Congress, Philadelphia, Pa. (A. G. A. will exhibit)

26 •Independent Natural Gas Association of America, annual meeting, Mayo Hotel, Tulsa, Okla.

27 •A. G. A. Industrial and Commercial Gas Section, Industrial Gas Breakfast, Ritz Carlton Hotel, Philadelphia, Pa.

NOVEMBER

1-3 •Wisconsin Utilities Association, convention of Commercial and Technical Divisions, Gas and Electric Sections, Pfister Hotel, Milwaukee

8-11 •American Petroleum Institute, Stevens Hotel, Chicago, Ill.

8-12 •National Hotel Exposition, Grand Central Palace, New York (A. G. A. will exhibit)

9 •A. G. A. Industrial and Commercial Gas Section, Commercial Gas Breakfast, Hotel Roosevelt, New York, N. Y.

11-12 •Mid-Southeastern Gas Association, annual meeting, Sir Walter Hotel, Raleigh, N. C.

15-18 •National Association of Railroad and Utilities Commissioners, Savannah, Ga.

18-19 •National Personnel Conference of the Gas Industry, Palmer House, Chicago

18-20 •School Food Service Association, second annual meeting, Statler Hotel, Detroit, Mich. (A. G. A. will exhibit)

DECEMBER

November 28-December 3 •American Society of Mechanical Engineers, Hotels Pennsylvania & New Yorker, New York

1949

JANUARY

24-27 •A. G. A. Home Service Workshop, Hotel Statler, Cleveland, Ohio.

24-27 •American Society of Heating & Ventilating Engineers, Stevens Hotel, Chicago, Ill. (A. G. A. will exhibit)

24-28 •International Heating and Ventilating Exposition, International Amphitheatre, Chicago, Ill. (A. G. A. will exhibit)

Personnel service

SERVICES OFFERED

Commercial **Manager—Sales Manager** experienced in all phases of commercial work. Successful record in sales work. **1583.**

An experienced girl with degree in the field of **Home Service** with gas and electric utility desires a change of position and location. Details and references upon request. **1584.**

Chemical Engineer—June "48" graduate seeking employment as trainee in sales or production work with a future. Ranked in top quarter of engineering class; readily assumes responsibility. Courses of study included Fuels, Power Generation Materials, Plant Layout, and Design. Veteran, single. (24). **1585.**

Engineer, Chemical—Graduate June 1948. Prefer position in New York area but will work in other parts of country. Course of study included Fuels, Plant Design and thesis. Single. (22). **1586.**

Personnel and **Training**—Military Academy graduate, 1939 (B.S.), with extensive Army service and experience in training and personnel administration; one semester, school of Business (Personnel Administration, Labor Policy, Management), Columbia University. Will go anywhere. Married. (35). **1587.**

Gas Engineer—now employed as consultant and general supervisor for a gas conversions company; previously engineer for Gas Utilities Company; desire new connection in either supervisory, administrative, training, or technical capacity. Graduate Chemical Engineer. **1588.**

Depreciation Engineer, Professional registration in petroleum and natural gas (Texas). Graduate of M. I. T. Twenty years' experience in exploration, production, industrial sales, depletion and federal regulation. Currently employed as accounting adviser. Desires connection with large natural gas company. **1589.**

Sales Engineer or **Manager**—over twenty years experience in sales promotion of industrial, commercial, housheating and domestic gas appliances. This has included selling, installing and servicing. Desires to hear from appliance manufacturer, dealer or utility. **1590.**

Engineer, Supervisor:—Graduate engineer with diversified experience in the gas industry. Design of production and handling plants, gas surveys, studies, etc. Operation, maintenance and construction of gas production plants. Distribution operation, maintenance and construction. Appraisals and property records. **1591.**

Controller, Assistant Controller, **Treasurer,** Assistant Treasurer—Public Utility specialist in accounting systems and procedures, cost control, budgeting, finance, statistics, rate making and complex regulatory problems. Eleven years experience with large utilities assisting executives in policy-making and other administrative duties. M.B.A., Harvard graduate School of Business Administration. Young, married veteran. **1592.**

Economic Statistician: Columbia graduate, 1941, experienced in economic research. Thorough knowledge of modern statistical technique and experience in organizing and carrying out research projects. Ability to interpret results and express them in concise reports. Married veteran. Available for immediate employment. Prefer vicinity of N. Y. C. (27). **1593.**

POSITIONS OPEN

Sales Engineer specializing on Gas Fired Unit Heaters to cover the Southwest, with headquarters in Dallas. Prefer a graduate mechanical engineer with sales experience in the Industrial Gas Appliance field. Excellent opportunity to grow with a leading manufacturer of Air Conditioning, Refrigeration and Industrial Heating Equipment. Your reply stating age, education, experience and desired salary in the strictest confidence. **0534.**

Gas Engineer—Experienced in water gas and coal gas operations. Distribution experience helpful but not necessary. Southern New England location. Graduate engineer preferred. **0535.**

Sales Engineer—Permanent position selling couplings, fittings and pipe repair products, primarily to the gas industry. Previous sales experience in this field desirable. Prefer man under 45 free to travel extensively. Salary and bonus. All applications considered in strictest confidence. Write full details concerning education, experience, compensation requirements and other personal data. **0536.**

Eastern Utility—Man experienced in accident prevention work including program development, training, etc. Please state qualifications, age, previous salary background in letter. **0537.**

National advertising

(Continued from page 7)

Gas Section. Particular care is being exercised to see that this advertising does not feature or solicit certain business which must generally be refused at this time because of continuing shortages and uncertain deliveries of materials and equipment urgently needed for plant and system expansions.

Fields covered by industrial and commercial gas advertising have been selected by a study of markets most important to the industry. Three main groups of readers are singled out:

In technical and commercial publications, the advertisements reach engineers, superintendents, works managers, production personnel—those who buy, specify, recommend and are responsible for gas equipment.

In horizontal or general business magazines, the advertisements reach executives and top management who may not be technical or operating men, but who control the purse strings and have a decided voice in determining what type of fuel or equipment is purchased.

In engineering college publications, the advertisements reach engineering students, faculty members and alumni. They tell the story of gas and gas equipment to young men who soon will take their places in industrial and commercial plants. Also reached are large bodies of alumni already in industry, and faculty members, many of whom do consulting work for industrial concerns.

ADVISORY COUNCIL

ERNEST R. ACKER.....Poughkeepsie, N. Y.
FRANK H. ADAMS.....Toledo, Ohio
EVERETT J. BOOTHBY.....Washington, D. C.
FLOYD C. BROWN.....Chicago, Ill.
WALLACE M. CHAMBERLAIN
.....Grand Rapids, Mich.
LYMAN L. DYER.....Dallas, Texas
LESTER J. ECK.....Minneapolis, Minn.
E. F. EMBREE.....New Haven, Conn.
KARL EMMERLING.....Cleveland, Ohio
HENRY FINK.....Detroit, Mich.
R. E. FISHER.....San Francisco, Calif.
RALPH L. FLETCHER.....Providence, R. I.
C. S. GOLDSMITH.....Brooklyn, N. Y.
H. E. HANDLEY.....Jackson, Mich.
L. E. KNOWLTON.....Providence, R. I.
MALCOLM LEACH.....Taunton, Mass.
J. L. LLEWELLYN.....Brooklyn, N. Y.
H. N. MALLON.....Cleveland, Ohio
NORTON MCKEAN.....Albany, N. Y.
R. L. O'BRIEN.....Detroit, Mich.
C. E. PACKMAN.....Chicago, Ill.
C. E. PAIGE.....Brooklyn, N. Y.
J. J. QUINN.....Boston, Mass.
BRUNO RAHN.....Milwaukee, Wisc.
O. H. RITENOUR.....Washington, D. C.
J FRENCH ROBINSON.....Cleveland, Ohio
W. F. ROCKWELL.....Pittsburgh, Pa.
LOUIS RUTHENBURG.....Evansville, Ind.
C. V. SORENSON.....Fort Wayne, Ind.
MARCY L. SPERRY.....Washington, D. C.
T. J. STRICKLER.....Kansas City, Mo.
HARRY A. SUTTON.....Newark, N. J.
CHARLES A. TATTERSALL.....Syracuse, N. Y.
E. M. THARP.....Columbus, Ohio
J. H. WARDEN.....New York, N. Y.
LEITH V. WATKINS.....New York, N. Y.
R. E. WERTZ.....Amarillo, Texas
CHARLES G. YOUNG.....Springfield, Mass.
P. S. YOUNG.....Montclair, N. J.

ASSOCIATED ORGANIZATIONS

Gas Appliance Manufacturers Association
Pres.—Frank J. Nugent, Bryant Heater Co., Cleveland, Ohio.
Man. Dir.—H. Leigh Whitelaw, 60 East 42nd St., New York, N. Y.

Canadian Gas Association
Pres.—Alexander MacKenzie, General Steel Wares, Ltd., Toronto, Ontario.
Exec. Sec.-Tr.—George W. Allen, 7 Astley Ave., Toronto.

Gas Meters Association of Florida-Georgia
Pres.—Clifford J. Noda, St. Augustine Gas Co., St. Augustine, Fla.
Sec.-Tr.—J. W. Owen, Central Florida Gas Corp., Winter Haven, Fla.

Illinois Public Utilities Association
Pres.—C. W. Organ, Central Illinois Light Co., Springfield, Ill.
Sec.-Tr.—T. A. Schlink, Central Illinois Light Co., Springfield, Ill.

Indiana Gas Association
Pres.—Louis B. Schiesz, Indiana Gas & Water Co., Inc., Indianapolis, Ind.
Sec.-Tr.—Clarence W. Goris, Northern Indiana Public Service Co., 500 Broadway, Gary, Ind.

Maryland Utilities Association
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Sec.—Raymond C. Brehaut, Washington Gas Light Co., Washington, D. C.

Michigan Gas Association
Pres.—T. W. Weigele, Michigan Consolidated Gas Co., Detroit, Mich.
Sec.-Tr.—A. G. Schroeder, Michigan Consolidated Gas Co., Grand Rapids, Mich.

Mid-Southern Gas Association
Pres.—C. B. Zeigler, Public Service Co. of N. C., Inc., Gastonia, N. C.
Sec.-Tr.—Edward W. Ruggles, North Carolina State College, Raleigh, N. C.

Mid-West Gas Association
Pres.—Arnold C. Rathkey, Iowa Public Service Co., Waterloo, Iowa.
Sec.-Tr.—Harold E. Peckham, Northern States Power Co., St. Paul 2, Minn.

Missouri Association of Public Utilities
Pres.—J. W. McAfee, St. Louis, Mo.
Gen. Counsel—Wm. H. Allen, 101 W. High Street, Jefferson City, Mo.

Natural Gas and Petroleum Association of Canada
Pres.—S. A. Morse, Union Gas Co. of Canada, Ltd., Chatham, Ont.
Sec.—Joseph McKee, United Gas and Fuel Co. of Hamilton, Ltd., Hamilton, Ont.

New England Gas Association
Pres.—Edward G. Twohey, Worcester County Electric Co., Webster, Mass.
Exec.-Sec.—Clark Belden, 41 Mt. Vernon St., Boston, Mass.

New Jersey Gas Association
Pres.—Howard H. Melvin, Cumberland Gas Co., Millville, N. J.
Sec.-Tr.—Elmer A. Smith, Public Service Electric and Gas Co., Newark, N. J.

Oklahoma Utilities Association
Pres.—L. A. Farmer, Northern Oklahoma Gas Co., Ponca City, Okla.
Sec.—Kate A. Niblack, 625 Biltmore Hotel, Oklahoma City, Okla.

Pacific Coast Gas Association
Pres.—A. F. Bridge, Southern Counties Gas Co., Los Angeles, Calif.
Man. Dir.—Clifford Johnstone, 447 Sutter St., San Francisco, Calif.

Pennsylvania Gas Association
Pres.—B. V. Pfeiffer, The United Gas Improvement Co., Philadelphia, Pa.
Sec.—William Naile, Lebanon Valley Gas Co., Lebanon, Pa.

Pennsylvania Natural Gas Men's Association
Pres.—Dorr P. Hartson, Equitable Gas Co., Pittsburgh, Pa.
Exec. Sec.—Mark Shields, 2619 Grant Bldg., Pittsburgh, Pa.

Southern Gas Association
Pres.—W. H. Ligon, Nashville Gas & Heating Co., Nashville, Tenn.
Man. Dir.—Robert R. Suttle, 1230 Mercantile Bank Building, Dallas 1, Texas.

Wisconsin Utilities Association
Pres.—W. E. Schubert, Wisconsin Michigan Power Co., Appleton, Wis.
Exec.-Sec.—A. F. Herwig, 135 West Wells St., Milwaukee, Wis.

AMERICAN GAS ASSOCIATION

HEADQUARTERS, 420 LEXINGTON AVE., NEW YORK 17, N. Y.

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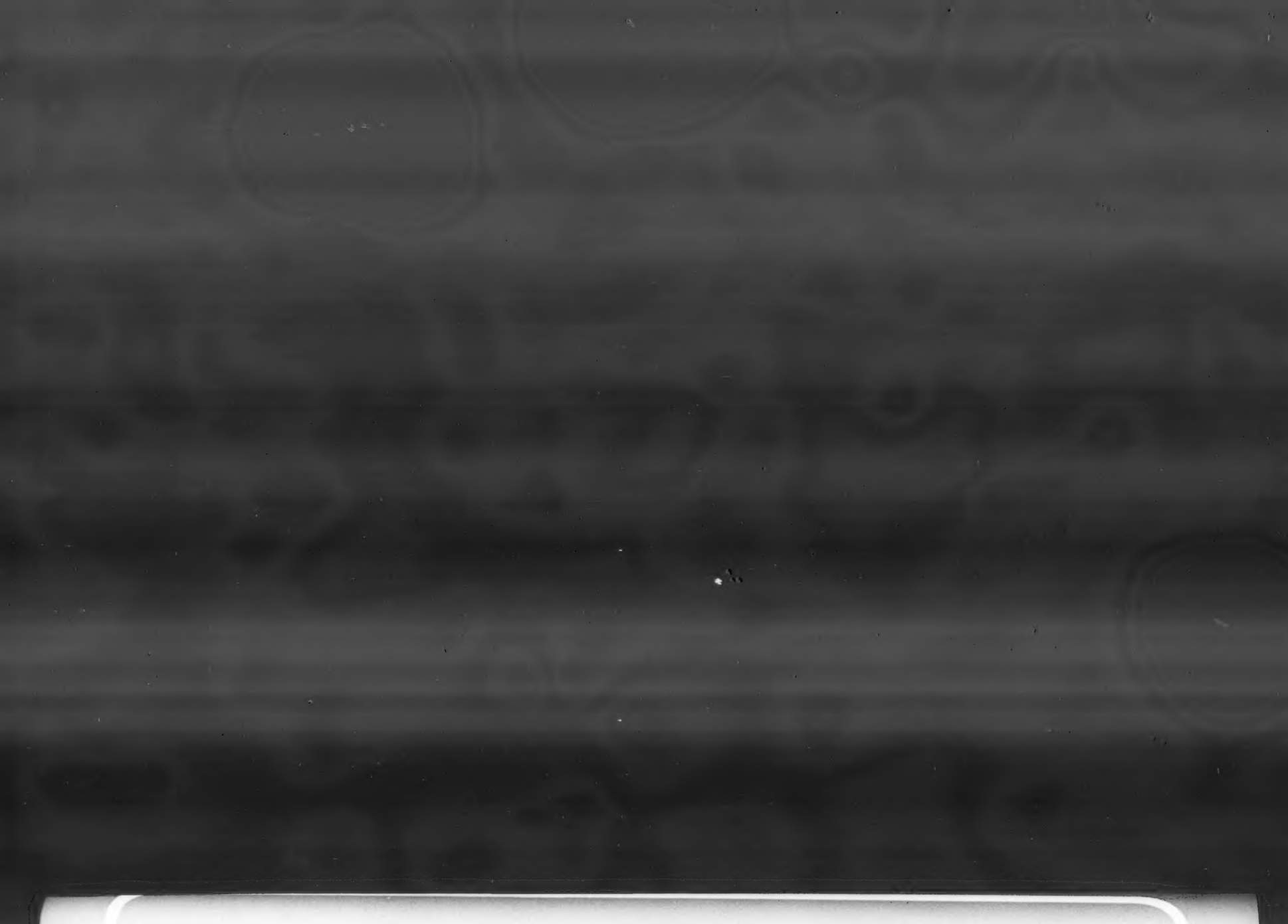
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